CQ CONGRESSIONAL TRANSCRIPTS
Congressional Hearings
Sept. 10, 2003

House Science Committee Holds Hearing on NASA's Response to The Columbia Report

BOEHLERT:

The hearing will come to order. I want to welcome everyone here this morning for a second of our hearings on the report of the Columbia Accident Investigation Board, and the first of our hearings on NASA's implementation plan on return to flight and beyond. I this Administration O'Keefe of NASA ought to be congratulated for their wholesale and grace of the CAIB report and for meeting so swiftly to put together a detailed, specific plan in response. But, while the wholesale embrace is comforting, what happens at the retail level is what will matter in the end.

We need to ensure that after this report, reforms are put into effect that will truly change NASA behavior up and down the chain of command.

BOEHLERT:

The current innovation of the NASA implementation plan is a useful start. As I'm sure Administrator O'Keefe will be the first to acknowledge, it is only a start; it is a work in progress.

At this point, for example, the report is still pretty much silent on how NASA will implement the CAIB's recommendation to establish an independent technical authority, one of the essential reforms sought by the CAIB. And then, at the same time, the plan says that NASA will go beyond the CAIB recommendations and review all waivers before a return to flight. Such a review is undoubtedly a useful additional step but it raises questions about who will conduct such a review and whether enough time is being allowed for it to occur thoroughly.

Indeed timing remains a critical question for NASA and this committee. Administrator O'Keefe has made clear in his recent statements, and I'm sure he will again today, that there is no fixed date for return to flight and that the target date of March 11 is, quote, "No earlier than date." That said, I'm still concerned that the target is exceedingly ambitious and could skew NASA's efforts to return to flight.

We also need to hear more about how NASA will schedule launches after return to flight to avoid the excessive schedule pressure related to the construction of the International Space Station, pressure that was discussed in great detail in the CAIB report, and pressure that Admiral Gehman has cited as an area in which NASA leadership created a cultural problem.

So we have many questions about the implementation plan, but they are just that, questions.

This report has been available for less than a week and it is, as I said earlier, a work in progress. It is far too early for us to comment definitively on it. All we can really say now is that we will monitor the implementation plan and how it is carried out as closely as humanly possible, even as we deal with larger questions about the future of the human space flight program as a whole.

I should add that NASA personnel, including the administrator, have been extremely accessible to both the members and the staff of this committee in recent weeks, which should enable our oversight of return-to-flight to go more smoothly. I'm sure Administrator O'Keefe will continue to be helpful to us this morning.

But we also than Admiral Gehman for appearing before us again today. I want to make clear that Admiral Gehman is not here to comment on the implementation plan itself. He's only had a week or so to look at it and he isn't authorize to speak on the subject on behalf of the board, which has officially dissolved now.

The reason we've asked Admiral Gehman back is to ensure that no one mischaracterizes the findings or recommendations of the board at today's hearing, even inadvertently.

The last thing we need is for a misinterpretation to originate here and for it then to be perpetuated as NASA plans for its future. So Admiral Gehman will have a circumscribed, but vital role today, keeping us on the straight and narrow. And I want to thank him for doing that.

Mr. Hall?

HALL:

Mr. Chairman.

And good morning to both of you. Welcome you, of course, and I thank you for the capability you've brought, the responsibility you've shown, the flexibility you've practiced and the availability that you've given to us. By golly, you've been available during this. I've attended almost every meting we've had with the families, and you've both performed admirably, and I respect you and I thank you.

These hearing are some of the most important that this committee is going to hold this Congress, and I think they're arguably probably the most important we've held in the last 10 years on the subject matter that we're talking about here today. We're examining the causes of just an absolutely terrible accident that took the lives of some brave people and friends of ours -- all of us -- and resulted in the loss of seven brave people in the shuttle Columbia.

We're really looking for solutions to the problems that were uncovered by the accident investigation board, led by the admiral, to ensure that we can all do everything that we can do to avoid any type shuttle problems in the future.

Admiral Gehman and his colleagues gave very helpful testimony last week. We thank you for that. We appreciate their insights and constructive criticism.

Now it's your turn, Mr. O'Keefe. This committee is interested in hearing your response to the report, what you agree with, what you may disagree with. And you can have both and you're entitled to both. And we can agree without being disagreeable in what you intend to do with the court's recommendation. Normally, I'd like to see just a real cat fight between you two guys.

(LAUGHTER)

But I don't guess I'll get to see that.

Back in high school at recess, we had two bullies, we'd always get them chin to chin and then we'd hold their arms out and say, "The first one that spits over my hand's the best man." And that's when the fight started.

(LAUGHTER)

Well, we're not that crude; we're not going to go there. We're dealing with gentlemen and capable men and leaders of this country, two of the finest leaders we have in this country. I look forward to working with you and working toward making the shuttle work and getting back into space and continuing the thrust that we've had. We're talking about the future of our human space flight today, and all of us are going to have to work together.

Mr. Administrator, I've said it publicly before and I've said it to you personally and privately, I intend to work with you and with the White House and with my colleagues in Congress.

And I intend, Admiral, to keep in touch with you. And I know your interest is not going to wind up with the day that your jurisdiction ceases or is slowed down.

So, you know, part of the effort I intend to devote myself to the examination of how we can best protect the lives of the shuttle astronauts. And I know I don't have a corner on that wish; all of us have that hope and that desire and we have that expectation.

We may not have another shuttle accident for many, many years. I hope we never have another one. But God forbid, we may have one a lot sooner than that. And however, if an accident does ever happen again, I just want to know that we did all we could to develop a clear escape system for the shuttle if it's feasible, if it's workable, and we have to know that. But we have to start on that route and we have to get on that route. And we have to get under way with doing that.

I don't know how much money ought to be put up, I'm not sure where the money ought to come from, but I know that that ought to be everyone's goal is to have a way out. If we guess wrong on the type shuttle to put up there, the type of protection we put in there, they need to have an alternative way out if we've all guessed wrong or if we guess wrong in the future. And we're capable of it because we've guessed wrong in the past.

Last week, I asked one of the distinguished board members, Dr. Sheila Widnall, MIT professor and former secretary of the Air Force, if she thought it made sense to at least start down the trail of looking seriously at shuttle crew escape systems. And she is of record agreed with us saying it's a completely reasonable plan to take.

Well, I want take any more of your time to discuss these issues in my opening statement. I think we all want to hear from the witnesses and I think we all want to know that those youngsters who we send up there, we want to know that they have the safest vehicle, the safest circumstances. And if we don't give them those safer circumstances or they don't turn out to be the safest that they have an alternative and an opportunity to live.

That's my hope, that's what I'll be working toward. But I plan to work with you, Mr. Chairman, with the president and with you, Mr. administrator, and with every member of Congress.

I yield back my time.

BOEHLERT:

Thank you very much, Mr. Hall. You demonstrate the bipartisan spirit that has always dominated the proceedings of this committee.

Let me make a correction for the record. In my opening statement, I said that Admiral Gehman had the NASA return-to-flight plan for a week or so. It's a day or so, and I want to make that clear.

Now the chair recognizes the chairman of the Subcommittee on Space and Aeronautics, the distinguished gentleman from California, Mr. Rohrabacher.

ROHRABACHER:

Thank you very much, Mr. Chairman, and I appreciate the fact that you have taken personal leadership and put so much time and energy into this to make sure that we not only have a full understanding of the Columbia tragedy, but also that we have an accounting, and that we have the changes necessary to make sure that America's space program gets back on track and remains a leader in space exploration and utilization.

Tomorrow marks the second anniversary of the attack on the World Trade Center and Pentagon. That happened roughly a half year into president Bush's administration. A half year after that, Mr. O'Keefe, you were appointed to head NASA. One half year after that, another major catastrophe happened, the destruction of the space shuttle Columbia.

The American people understand that it takes time for a new leader to effect change within an organization, especially the size and

scope of the United States government and the size and scope of NASA. At some point, however, there must be accountability.

Well, when you add it all up we're talking about Mr. O'Keefe was administrator of NASA for roughly a year before the Columbia went down. He was a good choice to head the agency and I still believe that. He was a good choice because NASA needed an accounting. And Mr. O'Keefe was officially dubbed as he took control the ultimate bean counter and the one who would make sure we understood where all the financial happenings over at NASA -- what was going on there.

However, more than financial responsibility was vitally necessary at NASA. The Gehman report suggests an evolution in attitude toward safety, evolution that took place for over a decade -- so long before Mr. O'Keefe got there -- but this downward evolution in attitude toward safety was a major cause of the Columbia tragedy.

I am disturbed that there still seems to be certain attitudes at NASA, even after the Gehman report has pointed out that this attitude and that the general attitude was a major cause of this crisis or this catastrophe.

And it just seems to me to be reflected in what I see as a rush to return to flight, in terms of NASA, and a rush, I might say, to return to policies that would keep us dependent on the shuttle. NASA's recent decisions, which basically nixed alternative resupply efforts to space station, seem to reflect this mindset; a mindset that would keep us depended on the shuttle even after the Gehman report. Even after all has been said and done, we end up having policies that are pushing away alternatives to the shuttle and keeping us dependent on that, in terms of the completion of the space station and the supply of space station.

Today, we examine the causes of the Columbia tragedy. We are looking for accountability and solutions. We need to know about changes in personnel, in policy and in mindset at NASA.

Let me say for the record that I still have -- and I believe this committee has -- faith in Mr. O'Keefe. He was chairman or administrator for a year. Now, how much he could have changed things in that year -- I know he personally went to all of the space shuttle launches, and we'll be talking about that during the questions and answers, and we know that he takes his job very seriously and continues to take his job very seriously. But what he does now is as important in his place in history, in terms of how he will be viewed in history, as what he did before.

And so we are looking for not only in our way of what you did before and what your predecessor did before, but also the policies that you were advocating and the leadership you are providing now to NASA.

And again, let me state that I have full faith in Mr. O'Keefe and we're lucky to have a man of his caliber leading NASA.

Finally, I think, Mr. Chairman, that we in Congress need to accept some accountability ourselves to not just always be pointing fingers. The fact is that all of us on this committee have been serving with this responsibility of overseeing NASA for a lot longer than Mr. O'Keefe has been on his job. And I think that that deserves some self-introspection as well, and some thoughtful examination by this committee as to whether we're doing our job.

ROHRABACHER:

So with that said, I look forward to the testimony today. And, again, I appreciate the leadership you're providing, Mr. Chairman.

BOEHLERT:

Thank you very much, Mr. Rohrabacher.

The chair recognizes the ranking member of the Subcommittee on Space and Aeronautics, Mr. Gordon.

GORDON:

Thank you, Mr. Chairman.

And welcome, Admiral Gehman and Mr. O'Keefe.

Let me start by reading some statements that struck me from a report here -- the report.

"NASA must support the space shuttle program with resources and staffing necessary to prevent the erosion of flight safety-critical processes.

"The committee feels strongly that the workforce augmentation must be realized primarily with NASA personnel, rather with contractor personnel.

"Space shuttle maintenance and operations must recognize that the shuttle is not an operational vehicle, in the usual meaning of the term.

"The size and complexity of the shuttle system and of NASA contractor relationship placed extreme importance on understanding communication and information sharing."

Admiral Gehman, you may recognize that from the McDonald report that came forth in 2000. And I think it's probably, while you have said candidly on a variety of occasions that -- and you can say it for yourself -- but you didn't plow all that much new ground in those areas; that McDonald laid a good premise there.

Then, on April 18, 2002, Mr. Blumberg, who was the head of the Aerospace Safety Advisory Panel, testified before this committee: "In all my years of involvement, I've never been as worried for space shuttle safety as I am right now. All of my instincts suggest that the current approach has planted the seeds for future danger."

And I think those statements laid a premise for this statement that was -- that, Admiral Gehman, your board put in your report, and I quote: "Based on NASA's history of ignoring external recommendations or making improvements that atrophy with time, the board has no confidence that the space shuttle can be safely operated for more than a few years based solely on renewed post-accident vigilance."

The report also noted that, "The long-term recommendation would be internally resisted by the space agency." That's pretty rough.

But let me say, I'm not that pessimistic. As I told Mr. O'Keefe the other day, he has received a lifetime worth of criticism and advice from the front page of most every newspaper in the country. And so, I think that he's an able person who's gotten the message.

And I'm looking forward today to hearing more about how we set these benchmarks, so that when the crowds recede and the cameras go away, that we can make sure that the attention is still on safety and moving this process forward.

And again, Mr. O'Keefe, I think we're all in this together. I'm optimistic you're going to -- that you've gotten the message and that you're going to lay out a good plan for us. And thank you for being here today.

BOEHLERT:

Thank you very much. And to all of the members, I'm going to tell you to put their statements in the record at this juncture, and we go right to our witnesses.

Our panel today consists of the Honorable Sean O'Keefe, administrator of NASA, and Admiral Harold Gehman, chairman of the Columbia Accident Investigation Board.

Gentlemen, Mr. O'Keefe, you are first and we will not be arbitrary; we're going to a time limit and then we'll hear from Admiral Gehman.

O'KEEFE:

Mr. Chairman, Congressman Hall, members of the committee, thank you very much for the opportunity to appear before you today to discuss NASA's response to the Columbia Accident Investigation Board's report.

Mr. Chairman, if you would, I have a statement that I'd like to submit for the record and then summarize briefly.

BOEHLERT:

Without objection, so ordered.

O'KEEFE:

Over our 45 years as an agency, since NASA responded in 1958, you'll find in the course of this history that our time has been defined by great success and by great failures. In each of these defining moments our strength and resolve as professionals has been tested. This is one of those seminal moments in our history and it is defined by failure.

On February 1st, we pledged to the families of the Columbia that we would find the problem, fix it and return to the exploration objectives that their loved ones dedicated their lives to. The accident investigation board report completes the first of these commitments. And we are indebted to Admiral Gehman and his colleagues for their exceptional public service and extraordinary diligence to a very difficult task. We asked for an unvarnished, objective, independent view and we got it.

As we begin to fulfill the second commitment to the families, to fix the problem, our critical first step is to accept the findings, to comply

with the recommendations and to embrace this report. There is no equivocation on that pledge. This report is a blueprint. It's a road map to achieving that second objective.

In the course of the proceedings in this investigation, the board has given us an extraordinary headstart by their candor, their openness and the release of findings and recommendations during the course of the investigation itself; they didn't wait until the final words were drying on the paper of the report itself. They've been conducting this in a very open setting and they've been communicating regularly and often.

We have telegraphed all along the way, in the course of their public hearings and commentary, exactly where their findings were. And they've found them and moved forward in that particular direction and we have been listening.

They started, thanks to their good work and the manner in which they conducted it by developing an implementation plan. This is not something we developed in the last 10 days. It has been a work in progress, as we have listened carefully to their open testimony, their open commentary, their written advice and recommendations to us, so that we could begin to prepare that effort.

Now, as the chairman mentioned, on the 8th of September, we released a preliminary implementation plan in response to these recommendations, which we will upgrade regularly, often, amended it necessary, all the way to the point of not only return-to-flight but well beyond.

The report is divided into two primary categories: the preliminary recommendations of the Columbia Accident Investigation Board; and a second approach, which is to raise the bar to a standard higher than what has been stated in those recommendations.

And that raise-the-bar input will include observations of the board, other findings, commentary in the course of the board's report

review, different ideas or initiatives that they have proposed separately, factors we have discovered during the course of supporting the investigation, and any other good ideas from the general public or anybody else who wants to offer it.

We try and inventory all those different approaches, in order to work through dispositively each of those recommendations and additional ideas to make this a better, safer, stronger organization. Included in that category is anything and everything is going to improve this process, as well as the capabilities in hardware.

As we look through these recommendations, we have chosen to implement them very thoughtfully in order to be compliant with the recommendations.

We have several options that may be considered for each of those respective recommendations, and we must continually improve and upgrade that plan to incorporate every aspect we find along the way in the implementation effort; any other observations wherever they may come that need to be addressed as we work our way through this commitment to fix the problem.

In doing so, there will be regular updates, regular amendments, regular re-publication of that implementation plan to ensure that everyone knows exactly where it stands.

The accident investigation board report published hardware failures and the human failures and how our culture needs to change to mitigate against succumbing to failures of both kinds. We must go forward and resolve to follow this blueprint and do it in way that it is our very best effort to make this a stronger organization.

It's important to recognize, and we do, it will require all of us in the agency, not just those within the space flight community, or any one center or any one program, it must involve all of us at NASA. And to those who don't get that message, we will continually diligently transmit that message. And there's no question, some may not have

received it, but that is not an excuse to not keep trying to make sure it's received by all.

We must recognize this is an institutional set of findings, well beyond the scope of this accident. There's application to everything we do. And that's a profound set of recommendations. It does have applicability to everything we are engaged in. Again, we wanted an unvarnished assessment from the Gehman board, and that's exactly what we got.

NASA is a very different organization today than it was on February the 1st. Our lives are forever changed by this tragic event, but not nearly to the extent of the lives of the Columbia families. Again, we sincerely apologize for our failures. We're taking inspiration from their approach. We must be as resolute and courageous in our efforts as they have been in working through this tragedy. It will be with them for the rest of their lives.

By committing ourselves to accepting these findings, complying with these recommendations and embracing this report, we know that how we respond in the days, weeks and months ahead, will matter as much as what we decide to do and whether it'll be a lasting change that will withstand the years of time, and it must be an institutional change. For that, there is no doubt.

We must also resolve to be definitive in our acceptance of our failures and with following through on our commitments to the Columbia families to fix the problem and return to the exploration objectives their loved ones dedicated their lives to. And in that effort, we know we've got a lot of work ahead of us. We accept that, and we're pursuing that with great diligence.

In this period of this tragedy, in this chapter, we take great sadness and inspiration from the words uttered so many years ago by Oliver Wendell Holmes: "The greatness is not where we stand, but in what direction we are moving. We must sail sometimes with the wind and

sometimes against it. But sail we must and not drift, nor lie at anchor."

Mr. Chairman, thank you for the opportunity to testify this morning, and I'd be happy to respond to any questions you have, sir.

BOEHLERT:

Thank you very much, Mr. Administrator.

Admiral Gehman?

GEHMAN:

I thank you, Mr. Chairman, Mr. Hall, and members of the committee. I'll just make two short points. I appreciate the opportunity to appear here at this second hearing.

The board's intent was that the report we submitted would be the catalyst to cause changes. The board was very direct and clear that we don't intend that our report be dropped in somebody's in-basket and that our duties are finished.

In furtherance of that goal, I am pleased to appear here and to assist in making sure that the changes that are necessary, the changes we feel are necessary, are perceived vigorously.

The second point I would make is just to remind the members of the committee that our report is also clear that the full implementation of our recommendations are not completely in the hands of Mr. O'Keefe. Many of the recommendations are going to take the cooperation of NASA, plus the Congress and the White House, in order to implement. And I'd like to -- I just want to remind the committee of that.

I hope that during the questions and answers, that I get an opportunity to reply to Mr. Hall and to Mr. Gordon who asked two

very provocative questions and I'll be prepared to deal with those during the questions and answers.

Thank you, Mr. Chairman.

BOEHLERT:

Thank you very much, Admiral. Mr. O'Keefe, one of the most serious concerns discussed by the CAIB was undue schedule pressure, born of, among other things, an unrealistic schedule of shuttle flights to complete in '02 the International Space Station.

In your preliminary schedule for returning to flight, you show four flights in 10 months, three flights in six months and fewer than two months between two of the flights. Is this realistic? How are you determining what the pace of shuttle flights can be once STS-114 is launched?

O'KEEFE:

Well, thank you, Mr. Chairman.

We were guided by two primary objectives. The first one is we were returned to flight and we had determined that, based on all these recommendations and all the efforts that are necessary to comply with them, have been met and that are fit to fly and not one day before.

So whatever date is published is a not-earlier-than schedule. And we intend to be driven by those milestones and achievements of compliance with those individual options we may choose to implement the recommendations.

The second guidepost we will use for whatever flight sequence occurs thereafter will be based on the optimum systems integration planning for how the components and modules may be transported and installed aboard the International Space Station.

O'KEEFE:

And that will be at a flight sequence, again, that is based on whatever that engineering sequence model is and will occur no earlier than we are fit to fly. So there will be a requirement each and every flight that we have met all these objectives prior to doing so.

And so what you see is a notional schedule that is intended to try to drive out what the long poles in the tent are and the issues are in order to achieve those objectives.

BOEHLERT:

So it's absolutely clear in your mind, as I think it should be, and it's clear in our minds as we want it to be, that it should be driven by milestones and not a calendar?

O'KEEFE:

Indeed, sir.

BOEHLERT:

Admiral Gehman has agreed to -- and we had a rather lengthy discussion on this last week, and let me once again praise the admiral and the entire Columbia Accident Investigation Board for the outstanding public serve they've rendered, not just to NASA and the federal government, but to the nation.

But during our discussion, he's agreed to reconvene the Columbia Accident Investigation Board after a year in order to evaluate NASA's implementation of the board's report. We think, on the committee, and I feel every strongly about this, that a one-year look back would be very useful.

It's good to hear you say you embrace the recommendations and you're going to implement the recommendations, but will you require some assistance in helping us to evaluate the whole

process? Are you willing to bring the board back to evaluate NASA's performance?

O'KEEFE:

Well, having appointed the board in the hopes that we would receive an unvarnished, objective opinion, and having received just that, this is an imposition on the time of Admiral Gehman and his colleagues as to their willingness and availability later. But by all means if that is the desire of the Congress, the committee and yourself, and a willingness on the part of the former chairman of the accident investigation board, we are always anxious for their input, it has been most helpful, and I think they've given us a very objective view.

BOEHLERT:

Once again, let me say, hindsight is always 20/20, but I think there is great admiration for the board, for the diligence with which they pursued their task, the thoroughness with which they executed their mission and the independence they displayed at all times.

Admiral, would you care to comment on the administrator's response to that question?

GEHMAN:

Mr. Chairman, the board discussed this matter and I'm authorized to speak on their behalf and to say that if asked we will serve. And we feel that we would know exactly where to go and where to look, and it wouldn't take us very long to sort out whether or not these changes Mr. O'Keefe proposes are really taking or not.

BOEHLERT:

Thank you so much.

That's precisely why I individually -- well, collectively we are so interested in having that reconvening of the board for that one- year look back and evaluation.

O'KEEFE:

So ordered.

BOEHLERT:

Thank you very much.

That's the spirit of cooperation we hope for and, quite frankly, expect.

NASA submitted an update to its FY '03 operating plan last week. In the plan, NASA requests transfer $40 million from the science account to the human space flight account. Why are you requesting this transfer? Is it more than a coincidence that this is the same amount of '03 funding NASA intends to spend on return-to-flight activities? And how will this reduction impact on the science program?

O'KEEFE:

Sir, I'm going to give you a breakdown for the record, but it is a very small portion of the fiscal year '03 costs that we anticipate we'll be continuing to incur through September 30 -- you know, in other words, three weeks from now -- that represent the expenses we've engaged in primarily related to the supporting investigation, as well as the costs additional to the amount that we have already absorbed to provide for all of the institutional support necessary to the board's activities.

A very small fraction of it -- but again, we'll provide all the information for the record -- begins to identify the cost to look at options to begin implementing the recommendations. It is a full-cost estimate of what it takes for all the folks institutionally within NASA

to support this activity. And so we'll provide a greater detail of that as is contained in that.

As far as the consequence to the science programs, it derives from a number of different programs that is based on just program execution realities that have occurred there. But again, give you greater detail for that for the record and provide exactly what the consequences are. But I don't see it as being a case in which we're deferring science or eliminating any scientific program, as much as executing savings or efforts necessary during the course of implementation to make that kind of resource available.

BOEHLERT:

Well, we would hope that this is not a trend, getting the habit of dipping into the science fund to finance other operations, vital though they may be.

O'KEEFE:

Yes, sir.

BOEHLERT:

We want to do it right the first time with the other operations, as well as we want to do it right all the time with the science portion of the budget. And I'll look forward to the more detailed information you're willing to submit for the record.

Mr. Hall?

O'KEEFE:

I'm sorry, real quick, Mr. Chairman. I apologize.

Part of it, too, is due to the proposal the president submitted in July for an additional $50 million to support the activities related to the investigation from NASA, as well as the board itself, and the

beginnings of the activities we're looking at for the options. That not having made it as part of the supplemental consideration prior to the Congress adjourning in August, we've had to accommodate those '03 costs within funds available.

Again, very mindful of your precise point, which is that we not defer science objectives to do. We've endeavored to cover it elsewhere. That was not feasible given the nature of the congressional schedule, so as a consequence we are working through what resources are available to do this.

BOEHLERT:

Thank you very much, Mr. O'Keefe.

O'KEEFE:

Thank you, Mr. Chairman.

BOEHLERT:

Mr. Hall?

HALL:

Mr. Chairman, thank you.

In continuance of my, I think from the very word go, my effort not to seek causation nearly as much, or not looking for blame on what's already happened is behind us, but how to lessen our loss and how to lessen that thing that we talk about and we call risk, and if we can't lessen it down to zero, then to find an alternative to losing a crew, and that alternative has to be a crew escape vehicle of some kind.

Mr. O'Keefe, I'd like to follow up on the topic that I raised in my opening statement. As you know, I feel strongly and I'm not alone in that; this entire committee feels strongly, and I'm sure the president,

you, and everybody under you feels strongly that we need to do more than we're doing now to protect the astronauts who fly the space shuttle, or its upgrade or its replacement -- whatever vehicle we have, to have safety as a number one factor in there, and as a necessary part of the amount that we've raised or appropriated toward that cause, that safety occupies its proper percent of that appropriation.

It seems to me that it doesn't have to be as risky as it is. At the present time, if we lose the shuttle, it's almost certain that we're going to lose the crew, and it just shouldn't be that way. As I said in my opening statement, we need to be taking a serious look at what's to be done to add crew escape systems to the shuttle that would protect all the crew, not three of them or four of them or just the captain, but everybody that's aboard.

And we ought to be challenging industry to come up with innovative approaches that could make such a space shuttle crew escape system possible and affordable and doable, and look to them to find a way to lessen the weight and to lessen the cost, and to work it into any future spacecraft we have and to be working toward making it available to the spacecraft we're using.

As I understand it, NASA has a modest study under way to review previous crew escape studies. That's good, but it's really just not sufficient. We need the kind of in-depth engineering analysis and a consideration of design options advocated by Dr. Widnall at last week's hearing.

And that's what we were aiming for up here when I offered my amendment to NASA appropriations bill just two months ago, and it was accepted unanimously.

As you know, that amendment was adopted by the entire House without objection, so far as I know, supported by this good chairman, supported by everybody on the floor, and voted unanimously as an amendment. It's not the final answer, but it ought

to start us down the road to getting the information we need to work and to make an informed decision.

Now, Mr. Administrator, I guess my question to you: Will you support our efforts on crew escape for the space shuttle? And are you prepared to work with us on establishing a serious initiative to seek the best, most innovative crew-escape concepts industry can provide, and then allow these design concepts to get a thorough, independent assessment?

O'KEEFE:

Yes, sir.

HALL:

By the best that you have?

O'KEEFE:

Yes, sir.

HALL:

The finest minds you have?

O'KEEFE:

Yes, sir.

HALL:

And I think it's the responsible thing to do, and I believe your answer is going to be yes.

O'KEEFE:

Yes, sir.

HALL:

I'm through. Thank you.

BOEHLERT:

Mr. Rohrabacher?

ROHRABACHER:

Thank you very much.

I'd like to focus a little bit on the actual technical cause of this tragedy, which is, as we know, the foam coming off of the shuttle and hitting the wing. When were you -- when did you first hear about the foam as a potential threat to the shuttle as a safety problem, Mr. O'Keefe?

O'KEEFE:

After the accident.

ROHRABACHER:

After.

O'KEEFE:

After the accident.

ROHRABACHER:

OK, no one ever mentioned to you, no staff member mentioned to you before in your one year prior to -- as administrator leading up to that? And how many space shuttle launches did you go to?

O'KEEFE:

Six.

ROHRABACHER:

Six.

So you took personal -- you paid personal attention to each one of these and you were there at each one of these launches, and no one, none of your staff, no one on your staff ever mentioned the foam?

O'KEEFE:

I've searched my recollection and I cannot recall a single occasion.

ROHRABACHER:

Right.

And Dan Goldin was, of course, the administrator prior to you. For about 10 years, I guess, he was administrator. Eight years? Well, for about a decade he was...

O'KEEFE:

Nine and a half.

ROHRABACHER:

Nine and a half, all right. Thank you.

Is there any evidence that -- did he ever leave anything that suggested that the foam was a potential problem that needed to be dealt with?

O'KEEFE:

Not that I'm aware of.

ROHRABACHER:

Admiral Gehman, did...

GEHMAN:

Mr. Rohrabacher, the board did a search of over 50 reviews of investigations into NASA, including the Rogers commission in which -- foam came up during the Rogers commission -- and all 50 reviews missed categorizing the foam as a danger to the shuttle.

ROHRABACHER:

Now, so right up until the -- but there was an awareness that the foam was coming off and, Mr. O'Keefe, were you ever -- did it mention that foam was coming off as a phenomena, but not as a threat? Anyone ever mention it?

O'KEEFE:

Not that I recall.

ROHRABACHER:

Shortly after the -- I think within a matter of hours after the Columbia went down, I remember reading a press account that the foam had been ruled out by NASA. Someone in your organization said that. Do you know who in your organization made that statement?

O'KEEFE:

Yes, sir. The policy of the agency from the first day, the first moments after the accident all the way up until the completion of this report and the drying of the ink on it, was that we were never going to rule out any scenario, never going to fall in love with any particular option. And yet there were always going to be some folks who didn't quite get the message.

ROHRABACHER:

Yet there was a quote in the paper...

O'KEEFE:

Yes, sir, that's quite true.

ROHRABACHER:

... saying the foam had been ruled out.

O'KEEFE:

Yes, sir, that was quite true, and that was corrected.

The individuals involved in that case were advised that, no, the policy is we will leave every single option open until the board closes off those options methodically in their efforts to...

ROHRABACHER:

So some NASA people took it upon themselves to announce to the press that the foam had been ruled out?

O'KEEFE:

There were some folks who expressed an opinion, and that was corrected.

By our actions, sir, we have supported the board in the effort in order to ensure that every single option, scenario, every approach was run to ground at their choosing. That's by our actions. The statements on the part of some individuals were corrected and we acted on the larger policy I just enunciated.

ROHRABACHER:

But did that not reflect the mindset that Admiral Gehman reported was a major contributor to the -- so the fact that we had the foam

ruled out shortly after the tragedy, yet we now know the foam was the technical cause of this tragedy?

O'KEEFE:

The larger question I think you're raising on this specific instance is that we assume we know what we know rather than proving what it is we know.

One of the most powerful comments in this entire report that I've seen repeated several times, for effect, is that the burden of proof must be shifted from prove that it's unsafe to prove that it is safe. And that's something that's going to require not only a management focus, a leadership objective, a set of processes that support that particular approach, and a complete twist of that particular approach. I've taken that to heart.

ROHRABACHER:

I think that that's called being proactive rather than reactive.

O'KEEFE:

Yes, sir.

ROHRABACHER:

Now, I hate to do this, but I think that the public deserves this.

ROHRABACHER:

You, yourself, mentioned, after people kept asking about the foam, that people were -- in what I took as being not taking this serious -- you referred to people who were looking at the foam as foamologists. Of course, now I regret saying that. Who advised you that it was so unlikely that the foam was an issue that it should be taken that lightly?

O'KEEFE:

My comments to that effect were during the course of the early weeks of this investigation which several folks -- journalists -- sought to write about this strike as being the likely condition. And the plea in that case was, "Let's keep all the options on the table until the board has closed off every element of the fault tree analysis and they arrive at a conclusion of what they believe was the source of this accident."

And so, in that regard it was meant to try to put it in perspective. And I do not regret statements made looking back; you can't correct them. So, yes, that's exactly the terminology used, and it was intended to, please, ask folks to let's not get a lot of exercise, leap to the conclusions. Let's wait for the investigation board to reach those findings in a deliberate way. And they did.

ROHRABACHER:

I think that we needed that explanation, Mr. Chairman, because at first glance it would appear that that phrase was used to belittle those who were thinking that foam was a potential. But instead what you're suggesting is that you were trying to caution people to make a broader scope of their investigation, rather than a technical focus.

O'KEEFE:

And I purposely appointed 13 investigator, we wanted to see what those 13 investigators thought, rather than the opinions of everybody else.

ROHRABACHER:

I accept that.

Mr. Chairman, if we have a second round, I would like to go into questions about the future strategies for the shuttle.

BOEHLERT:

We ultimately will have a second round, which are very important.

The chair now recognizes Mr. Gordon.

GORDON:

Thank you, Mr. Chairman.

There's been, obviously, a lot written about this incident. One article that I thought was particularly good was written by David Singer at the New York Times, and I'll quote how he starts, "The bitter bottom line of the Colombia disaster comes down to this: NASA never absorbed the lessons of the Challenger explosion of 1986 and four successive American presidents never decided where American space programs should head after the Cold War and what it would cost in dollars and risk to human life to get there."

And so, Mr. O'Keefe, I was particularly pleased to read the other day about the interagency review within the White House of the future of NASA. My friend and chairman, Ben Rohrabacher, for at least the five years that he's been our chairman, and I think before that, has frequently criticized every administrator he can get his hands on for not having this vision with NASA. And Admiral Gehman, the other day -- I wanted to write it down because it was much more elegant than I am going to say -- but by paraphrasing him, he said that basically a vision is just a dream unless you have some money behind it.

And this has got to start with the White House, so I'm glad that this process is starting and I think it would be helpful for all of us to know a little more about that.

So if you would, please, if you could share with us, first, who specifically in the administration is heading the review? Is it the vice president, the director of the Office of Science Technology Policy or someone else? So we know at what level this is taking place.

What agencies are participating and at what level? That is, is it at the Cabinet level, the undersecretary level or some other level?

I know you mentioned to me that there was no formal charter, but could you tell us what the group stated goals are? And you know, what you see as a product? Do you expect there will be recommendations for the president or simply options? What you see as a schedule? And so far I don't think Congress has been involved; do you expect to get Congress involved and how would you do that?

O'KEEFE:

I can correctly say, there is indeed an internal effort under way, I think, to examine the U.S. space exploration policy objectives. And this has been certainly prompted by this cathartic event, without a doubt. And the process is one that, again, is very familiar within the internal functioning of the administration and inclusion of all the interested interagency as well as within administration participants: the president's science adviser, the Defense Department, the Commerce Department, NASA, others who have a specific stake in the activities, as well as those who would have a requirement to offer opinion, view, advice as we serve up a range of options that ultimately would be presented to the president for consideration.

So that process is just a very standard and normal procedure of what goes...

GORDON:

But we know, like, when they did the...

O'KEEFE:

You asked a whole series of questions, and I want to respond to those.

GORDON:

OK. Yes.

O'KEEFE:

At your pleasure, though. If you prefer...

GORDON:

No, no, no, no. I want to get to the specifics, so go right ahead.

O'KEEFE:

So that process of serving up those options. And again what the timing of that will be is based on, again, the maturity of that debate as we work our way through it. Ultimately, again, this will be offered to the president for his consideration and the options that may be available. And again, it's a timing circumstance now, it would dovetail neatly into not only the policy deliberation process, but also that which would pertain to the resource allocation, the budget process, and all the other elements that would pertain.

So it is an organized effort in that regard, again, not dissimilar to those who have been engaged into every other effort internal to not only this administration but others, and designed to serve up those alternatives for his consideration.

Timing, I would not speculate, and I think the answer to that one flatly is whenever the president decides.

It is very clear though, in the minds of all the folks engaged in this debate, which has been intensifying in light of the focus of the board's report as well as that particular concentration, that it will be moving at a time in which it needs to be relevant for Congress's consideration.

As we discussed, as you mentioned in our private discussions, indeed, we are looking to determine how congressional input may be developed here and brought into that equation. And, again,

you've offered some interesting ideas of what we may want to consider as questions. And I certainly await that opportunity to see the kinds of things that I can bring in during the course of these deliberations and make that possible.

Again, in conclusion of this, though, my over-arching concern is that the expectations be calibrated. As you define the vision, requirements that have eluded us for the better part of three decades, indeed since the end of the Apollo program, had been difficult enough but I think it was best summarized by commentary authored by the Augustine commission which met and concluded its activities in the early '90s in which they determined that yes, indeed, we unanimously agree that a vision is required, that there are not two individuals who could agree on what that vision should be.

We are attempting to do something that hasn't been done in quite some time. And we're endeavoring to do that as deliberately as we possibly can.

Thank you for the patience.

GORDON:

OK, but if I could be more specific. The questions that I asked were who headed up? You know, we know that the vice president headed up the energy task force. I want to get an idea of at what level this is so I asked who heads it up and at what levels are the various agencies -- what level are they participating.

O'KEEFE:

We're certainly not in the process of describing in great detail exactly who the participants are in these efforts.

GORDON:

Well, at least, sir, can you say who heads it up?

O'KEEFE:

No, sir. It's an internal, deliberative process; one that includes all the appropriate officials for the purpose of advising the president of what the options are for his consideration.

GORDON:

We're developing a vision for NASA and Congress doesn't even know who's on it, who heads it or, you know, when -- sort of, a game plan on reporting back? So I guess this is your review.

O'KEEFE:

No, sir, it's not.

BOEHLERT:

The gentleman's time has expired.

We'll have a second round.

GORDON:

OK. But I would point out I tried to understand earlier so I could get to the specifics, but we never got there.

BOEHLERT:

I understand, and the chair was very understanding of your approach and that's why we allowed an additional two minutes but we will have a second round.

O'KEEFE:

And my apologies to the congressman. I was attempting to answer that. I apologize for being too long.

(CROSSTALK)

CALVERT (?):

I thank you, Mr. Chairman.

As I mentioned last week, when Admiral Gehman was up testifying, I was in very much agreement with the board's suggestion that responsibility and authority for decisions involving technical requirements and safety should rest with an independent technical authority. I couldn't agree more with the conclusion and the relating recommendation. NASA needs to utilize independent assessment capabilities that will serve them throughout the life cycle of the space shuttle system and human space flight generally.

Admiral Gehman and Dr. Widnall had a nice exchange last week about the NFC Corona's (ph) long experience with independent assessment. Several months ago, as I understand, NASA created the NASA Engineering And Safety Center, NESC, at NASA's Langley Research Center. The NESC purportedly will serve as the independent safety oversight function.

And I guess my questions to you, Mr. O'Keefe, is what is the mission of the NESC and what role does the NESC play in NASA's return to flight activities, one? How does the NESC play in the independent safety organization that the Gehman board recommended? And finally, what other DOD and other governmental agencies that already employ independent assessment did you talk to in setting up this authority?

O'KEEFE:

The NASA Engineering and Safety Center we're anticipating to be operational, up and running on or about the 1st of November. So what we announced a couple of months ago was our intent to recruit from around the agency engineering technical staff who had the expertise to participate in one of the most, again, powerful parts of the recommendations on the independent technical authority that's described in that recommendation is a requirement for trend

analysis; the capacity to come in and work with a fresh set of eyes at what we consider to be routine operations and tease out of that what really are the anomalies we ought to investigate further.

And so, in that context the primary function of this group -- but not exclusively -- would be to have that capacity among the technical engineering talent to make determinations and examine the records, operational information and so forth of every program we do, not just shuttle but anything else we're engaged in, in order to see where those anomalies exist because we just flat missed them during the operational conduct.

It also has a role as we're developing as part of its charter to conduct, you know, the on-site inspections, to see that we're really living up to what we're talking about, as opposed to just simply reading our own press clippings on this and believing it's true. We've got to have the capacity to actually conduct the capabilities to see that.

In addition, it also will run what we -- the NASA safety reporting system which is the anonymous system for reporting safety anomalies or anything else anybody's got a problem with, so it's just not lost in the shuffle along the way.

So this becomes just part of that recommendation on that independent technical authority is covered by this particular initiative. By no means was it intended to be the monolithic organization that answered all of the elements in that recommendation. It covers large pieces of it.

It covers the second piece of your question, which is how's it play into the operational activity? They will have a role in operational activities. Again, any program that NASA conducts as a means to assure that we're not just using the engineering talents that's attached to the program and therefore potentially biased view, another powerful observation made by the board is that there becomes advocacy on the part of engineers and technical authority

and the objectivity is lost. And so, as a consequence, just to make sure that we've done that.

And in terms of the other Defense Department models used, one of the reasons for setting it up at Langley is, literally, across the runway is the Navy Safety Center. And again, given my naval service background and history an understanding of how that institution operated, there's some real interesting object lessons on how to do that right and a regular advice we don't need to have a conference center required. They simply walk across the runway and can attain that right on the spot.

And so, there are a number of different ways we're trying to bring best practices of how the Defense Department has done this business into how we set up this particular entity before we open its doors on November 1.

CALVERT (?):

And finally, Admiral Gehman, does the NESC satisfy the board's recommendation for the creation of independent safety organization for the space shuttle or did you have something else in mind?

O'KEEFE:

Not intended to.

GEHMAN:

No, as Mr. O'Keefe said, it's not intended to satisfy the requirement, it does not completely, but it's a good start.

CALVERT (?):

What would you like to see?

GEHMAN:

We were very careful to not prescribe what NASA should do to implement this, but clearly the functions that we want to be performed are prescribed in our report.

GEHMAN:

And to be very brief, they are a robust engineering organization that owns all the requirements and specifications to the shuttle program and all waivers to them, as well as the funding and engineering expertise to understand why those requirements and specifications were written in the first place, so they could understand why or why they should not grant a waiver.

And so, there are many ways to organize to do that and we left that up to NASA.

BOEHLERT:

The gentleman's time has expired.

And let me just explain, I'm trying to be very arbitrary in sticking to the five-minute rule at least for the initial round, because I want all members given an opportunity to participate.

Mr. Costello?

COSTELLO:

Mr. Chairman, thank you.

And Mr. O'Keefe, welcome.

Let me talk just a little bit about the core complete goal schedule for the International Space Station. I note that it's in report that the board found that the management goals were having a negative impact on the workforce and the workforce keeping the shuttle flying. Effectively the attitudes of managers came to view the

problems as threats to the schedule, rather than threats to safety of the astronauts.

Admiral Gehman testified that the workforce was aware that the schedule was probably unrealistic, but they -- that was not communicated to management that there was a disconnect and a lack of communications.

I reviewed your Senate testimony concerning that issue and others, and you indicated in your Senate testimony, that because prior flights had slipped, that workers should have been getting the message that there was flexibility in the core complete goal.

And I guess my first question is, first, let me say that I was pleased to hear you answer the chairman's question on the issue of return to flight that the number-one issue will be safety in (inaudible).

But my question is, in your Senate testimony, you said that workers should have been getting the message when there was slippage. Was management getting the message? Were you getting the message and was your team getting the message that if, in fact, the goal of February 19, 2004, that if this goal was slipping (inaudible) and did you recognize it? Number two, if you did recognize it, why didn't we modify the goal?

O'KEEFE:

Well, indeed, we -- the opinion on this point is irrelevant, because the board has reached that finding. And therefore in my judgment and that of all of us in the agency it's fact now.

COSTELLO:

I would take issue with that. I would say that it is relevant to the viewpoint of a management issue if, in fact, there are problems at the worker level that they believed that goals are unrealistic.

I want to know if they're communicating that to management and, if so, what action was taken, not so much for the past, but for the future.

O'KEEFE:

Well, I appreciate that. Thank you, sir. I appreciate the clarification.

Indeed, we failed to make sure that message was clearly understood by every single person associated with the shuttle program. We failed to do that. We failed to communicate that effectively.

There's a very understanding among the management team, the shuttle program management, the International Space Station program management, all of the folks engaged in this, that these were schedules to move toward the optimum systems integration schedule. And that's a point we've testified to and talked about lots in this particular committee proceedings in the past.

And so, in that context, again, we failed to get that message out clearly that this was a movement in the direction of the best systems integration and engineering approach to achieve the deployment of those modules and components to International Space Station. And that the critical feature, in order to make any possible final configuration of space station even arguable, was to achieve that node 2 (ph) configuration. Anything else builds off of that.

And so try to keep folks attentive to that. Within our international partnership, we wanted to talk about longer-term goals, lots of different inputs from external oversight that have different opinions in that.

We wanted to stay concentrated on the first essential step in order to make any of those debates meaningful, and in the process we failed to communicate that point effectively. And we need to do that in the future more effectively.

And that's the start we're trying to make to say, "These are milestone-driven. When we are fit to fly, that's when we're going to fly."

COSTELLO:

And that's what we're concerned about is the future.

A couple of quick questions, brief answers, so I don't run out of time here.

O'KEEFE:

Yes, sir.

COSTELLO:

One is how often were you briefed on the progress toward the core complete and who briefed you, if I may ask?

O'KEEFE:

There's a regular program review on the International Space Station and integrated effort in shuttle and station systems integration efforts on roughly a monthly basis. It involved the program management teams from both parties, as well as the senior folks in headquarters who are engaged in the space flight activity.

COSTELLO:

And do you -- have you developed plans yet -- I realize that the board just completed its work, but have you developed plans as to how we will guard against an overly aggressive schedule on return-to-flight?

O'KEEFE:

Well, again, this is a tough one, because the -- your observation is right on. The observation of the board, as I read the words, was our

focus on the schedule may have begun to influence the management team in the way they made decisions about and in pursuits. And what we've got to do is just constantly remind ourselves that, indeed, these are milestone objectives.

In the process of doing so, we have to have some notional schedule. We all live by that. From the moment the alarm clock goes off in the morning, we're driven by schedules. Every member this committee is, I'm sure, driven by lots of schedules that have been involved, in terms of what people expect of us.

So it is -- it has got to become more, as the board observed, an effective management tool for, kind of, teasing out what those problems could be to achievement, rather than being inviolate objectives to trying to find, you know, the accomplishment of some goal.

And that's the shift in mentality that I think we've had in the management team, where we've got to effectively communicate to every single person turning a wrench on this that that's exactly what the objective is.

COSTELLO:

Thank you.

O'KEEFE:

I thank you, Congressman.

BOEHLERT:

The chair recognizes Mr. Barton.

BARTON:

Thank you, Mr. Chairman. I appreciate that.

Mr. Chairman, I would ask unanimous consent that two articles be put in the record at the appropriate place. One is an article that appeared on September the 8th, 2003, in Space News, entitled, "Convert the Shuttle." The author is Dr. Robert Zueben (ph). The other is an expanded version of an editorial that appeared in the Wall Street Journal last week or the week before. It is written by Homer Hickman.

BOEHLERT:

Without objection, so ordered.

BARTON:

Mr. O'Keefe, I'm going to read to you something from one of these articles and get your view of it. This is the opening-- the first sentence: "It is now apparent that the space shuttle orbiters cannot be used much longer as a system for transporting crews to Earth orbit. The Columbia disaster has made it clear that the antiquated orbiters are becoming increasingly unsafe.

"Moreover, even if the shuttle could be flown safely, it is clear that using a launch vehicle with a takeoff thrust matching that of a Saturn V to transport half a dozen people to the International Space Station makes about as much sense as using an aircraft carrier to tow waterskiers."

What's your reaction to that?

O'KEEFE:

I think it's a wrong-headed view.

BARTON:

You think it's a wrong-headed view. How many flights have there been of the orbiter that had astronauts aboard?

O'KEEFE:

Oh, jeez. All right, let me get a precise number for the record.

BARTON:

I think it's 113.

O'KEEFE:

Yes, sir. It's -- no, 113 flights. I thought you said the number of astronauts board.

BARTON:

Real fast, the number of flights...

O'KEEFE:

Yes, 113. And there were some -- a number of astronauts that I'll have to get you precisely for the record.

BARTON:

I don't need to know. My question is how many times has the orbiter gone up when there were people on it. I think that number is 113.

O'KEEFE:

Yes, sir.

BARTON:

It may be a little bit more, a little bit less.

How many catastrophic accidents have there been in that 113 flights?

O'KEEFE:

Two.

BARTON:

Two. What does that percentage turn out to be, if you take two over 113?

O'KEEFE:

Yes, sir. It clearly is 1 in 58 or 56, whatever it is.

BARTON:

It's about 1.7 percent.

Do you know what the probability of a combat death is in fighter aircraft over Iraq?

O'KEEFE:

No, sir, I don't.

BARTON:

It's not that. It's a lot less than that. It's about a hundredth of that, maybe even a thousandth of that.

Now, we're putting our astronauts at risk in these orbiters, with the technology, some cases, is 30 years old, so that they can fly up to the International Space Station.

Now, how long -- if we build the space station, do exactly what you're trained to do, how long will that space station be useful?

O'KEEFE:

Probably in the next 15 to 20 years or a bit of a period of time it's going to take for that asset to...

BARTON:

Now, what happens after that?

O'KEEFE:

I think, our longer-term objectives are to work out conquering the technology limitations that we currently live with.

BARTON:

Right now, what is the next goal of the manned space program, after the International Space Station, which is going to be obsolete and non-functional in the next 15 to 20 years?

O'KEEFE:

To conquer the technology limitations that we have right now that really limit us from doing...

BARTON:

But we have no goal. They're not going to the moon. They're not going to Mars. They're not going to a space station that's in synchronous orbit between the Earth and the Moon. We have no goal. Isn't that true?

O'KEEFE:

I beg to differ, sir. The strategic plan we've developed -- and again, I'd be delighted to go through this with you and make sure that we have it played out. It is a stepping-stone approach, in order to achieve getting beyond low Earth orbit to be able to permit any exploration within the solar system. But the two things we've got...

BARTON:

My time is about to expire.

Here's my point. Here's my point, sir -- and I'm not upset with you and I'm not upset with Admiral Gehman, but we're putting American men and women at great risk for their lives to fly an orbiter that's 30 years, that cannot be made safe, and there's article after article after article that says that.

So my proposal at the appropriate time, at least with the acceptance of being able to offer, is to use these orbiters in an unmanned capacity, build a new space plane or a space orbiter that's just for people and go to the president and get the president to set a goal for the American people to have a real mission for our astronauts. And I don't know what that will be, but I am going to do everything I can within the rules of this committee and the House to prevent more Americans going up in the existing orbiters. I just think it's inherently unsafe. We've already lost 14 men and women. And if we keep flying them, we're going to lose 21 other men and women in the next 10 to 15 years.

And with that, Mr. Chairman, I would yield back.

BOEHLERT:

Comment on that, Mr. O'Keefe?

O'KEEFE:

Thank you, Mr. Chairman.

Thank you for your view, sir. We are certainly anxious to meet with you, to walk through what our vision and objectives are, at this point. We're basing everything we do at this stage, beginning with the strategic plan to determine how we'd proceed.

And then what I'll attempt to respond to is we really have to conquer the technology limitations that currently exist on in-space propulsion, power generation capacity and human endurance beyond where were before, but in order to make any solar system

exploration objectives feasible. And that's what we're trying to work through right now.

I'll just ask that you keep an open mind on that process and I appreciate the points you've raised. Positively, this is among the issues that we need to enjoin as part of the president's options that he would be considering for the purpose of what that broader exploration space policy objective will be.

(CROSSTALK)

BOEHLERT:

The gentleman's time has expired.

But, Admiral Gehman, your report -- the commission's report said the shuttle was not inherently unsafe, but it is inherently risky. Now would you comment on that?

GEHMAN:

Yes, sir. The board felt that it would be a pretty cheap shot to deliver it to the Congress a long list of goals without at least editorializing on a way out of this dilemma. And in order to that, we had to characterize the risks which we attempted to do. But we also suggested a way out of this dilemma.

And I might add that if we do get invited to come back and reconvene a year from now, in our little formula for addressing this very excellent question if there's been no action on our little formula, we'll probably comment on that.

And our little formula is very simple. And it does go along the lines that we've proposed here. That is the nation needs to decide what it needs to do in space, not what the vehicle should look like. First of all, we have to decide what our -- what we want to do in space. And NASA's vision doesn't count. It's got to be an agreed national vision.

So if we are, one year from now, no further along along that, we'll probably put that in our report, too.

But we did opine that the shuttle can be operated for the next couple of years with an acceptable amount of risk. It's still risky, but it could be made safer. But as soon as possible, we need to separate the crew from the cargo, and I think that was the point that was made here.

Thank you, Mr. Chairman.

BOEHLERT:

Thank you very much.

And we will get back to the second round that's why, Mr. Administrator, I would suggest that Mr. Barton's question, which was very specific, is so important -- this interagency team and who's doing what, as we're trying to get a clearer vision for the future.

The chair recognizes Mr. Lampson.

LAMPSON:

Thank you, Mr. Chairman.

And I, too, believe the same thing, Mr. Chairman. I think that we've expressed and tried to express from this committee and members of it for several years a real vision for NASA to develop some place to go, something that not just gives us a better concept of what the purpose of NASA is.

LAMPSON:

But I honestly believe that that will go light years in keeping the excitement, the enthusiasm of employees of NASA, the dreamers of this country who wanted to go and do things in space, giving them the opportunity to have the continuity of program after program,

rather than wondering when we come up with the technology what might we then do with that technology.

So I think, perhaps, it's a matter of philosophy, and which comes first, the chicken or the egg? I happen to be of the philosophy that you can achieve more technologically if you have some place to go and you develop the technology necessary to achieve those goals. And I hope that we can get about doing some of that.

The Gehman report cites the lack of an agreed national vision for human space flight over the last three decades as an organizational cause of this accident. And I want to follow through with some of the questions that were asked by Mr. Gordon a few minutes ago, and come back with some of the same points that were being made by Mr. Barton immediately before me.

Are you personally aware of who is in the meetings with the review committee?

O'KEEFE:

Yes, sir. There are a variety of different...

LAMPSON:

No, but you're familiar with each and every one of them?

O'KEEFE:

They vary.

LAMPSON:

From meeting to meeting?

O'KEEFE:

Yes, sir.

LAMPSON:

Can you give me an idea how many different agencies are represented in these meetings from time to time?

O'KEEFE:

Sure, exactly, as I've just described from Mr. Gordon a little bit earlier. It is the president's science adviser and his staff, the Defense Department, the Commerce Department, Office of Management and Budget. There's a range of other participants that will enter into that equation as necessary to draw on this expertise to look at what the longer-term exploration agenda...

LAMPSON:

Including people from the outside?

O'KEEFE:

No, sir.

LAMPSON:

It's all within the White House?

O'KEEFE:

It's strictly within the administration. It's an interagency process within the administration to work through these issues as a first start in order to serve this up to the president's consideration of options.

LAMPSON:

When might the second step come?

O'KEEFE:

Don't know. I'll get back to you very shortly, though -- very shortly.

LAMPSON:

OK. You said some time ago in some of your testimony or statements some place that you wanted to solicit public input. At what point will the public have its opportunity to give its input?

O'KEEFE:

There's been lots of different ways that those avenues have been enjoined of late. And again, the oversight hearings, there has been a range of outside witnesses who've been called with...

LAMPSON:

Before that committee?

O'KEEFE:

Before lots of congressional committees -- this is not a committee. It's an internal interagency process that's very similar to what every administration does. So this is an internal process for the purpose of advising the president on the options to be available.

LAMPSON:

And it's nothing like the Cheney committee?

O'KEEFE:

No, sir, it's not.

LAMPSON:

Let me switch a little bit. Is the group looking at costs and benefits of humans going beyond low Earth orbit...

O'KEEFE:

Yes, sir.

LAMPSON:

... or just robots?

O'KEEFE:

No, sir. I think it's looking at, again, the full range of U.S. space exploration policy objectives, which then includes the tactical questions you're raising: How do you perform it? What platforms, as the admiral just observed, might be used?

All those questions need to be resolved after you've answered the first top-level set of questions, and that's where we're really beginning it.

LAMPSON:

Has that committee considered the goals that have been set by China to go to the moon?

O'KEEFE:

I don't recall specifically whether it's been enjoined at any level at this juncture, but I have no specific recollection of that point.

I'm aware of it. Certainly, that's an observation that many have made. It's been written about extensively.

LAMPSON:

In magazines and such, but it's certainly not been brought to the public's level of awareness that, in my opinion, it should.

Do you have a feeling that we should push harder to let the public be aware of the goals that other nations have set to go to the moon? Is it important that others get there before we are? Do we need to care about that?

O'KEEFE:

Again, as a matter of policy, that ought to enter into the debate. And I, with you, agree fully that there ought to be a wider understanding within the general public of exactly what the intentions may or may not be of other national interests to achieve that objective.

LAMPSON:

Is there one person that sits in the chair of this committee considering these things, or it, too, change from time to time?

O'KEEFE:

Again, it is like every administration does, interagency coordination process to pull together the options for the president's consideration.

LAMPSON:

Well, but who's doing it? Do you do it?

O'KEEFE:

I'm one of the participants. There are others...

LAMPSON:

Participants? There is no chairman?

O'KEEFE:

Not particularly, no. It is more, again, a coordination process that's established as part of the interagency functions.

LAMPSON:

OK. Let me take my 10 seconds to sum up my statement.

I have now talked probably two and half years, maybe, about the Space Exploration Act. You're familiar with that bill that I introduced before?

O'KEEFE:

Yes, sir.

LAMPSON:

I'll be re-introducing that bill today. The bill calls on NASA to establish a phased series of goals over the next 20 years, including human visits to the Earth-sun libration point and Earth orbit-crossing asteroids, deployment of a human-tended research and habitation facility on the moon, humanless expeditions to the surface and to moons of Mars.

And as we work to return the shuttle to flight, we need to move outward beyond low Earth orbit. And in the process, we will revitalize our space program, we will energize industrial and academic sectors of this country, we'll create new opportunities for international cooperation, and more importantly than anything, I think, we'll inspire young people.

And I firmly believe that we've got to do it with what we've been talking about here, not the concept that you're going at it. And I would plead with you to please make that point to whatever this committee is, and maybe we'll find out a little bit more about the committee as we go along.

Thank you, Mr. Chairman.

BOEHLERT:

Thank you, sir. The gentleman's time has expired.

The chair recognizes Dr. Bartlett for five minutes.

BARTLETT:

Thank you very much.

In an attempt to put this accident in perspective, my colleague, Mr. Barton, asked about the probability of a fatal accident in the shuttle program and a possibility of a fatal encounter in our fighter pilots over Iraq. The two (inaudible) I would like to get on the record to put this in perspective in the roughly hour and a half since our hearing began, seven people have been killed on our highways, just the number of the astronauts, and 81 of our fellow citizens have died prematurely from smoking cigarettes. I wonder where the outrage is over this statistic.

I'd like to get something straight for the record, that if you had only the previous hearing records here and did not read the accident investigation board report you might reach an erroneous conclusion.

In an earlier hearing -- I think it was our joint hearing with the Senate -- there was some questions about the application of the foam in earlier flights. And I don't know exactly when this was changed, that the foam blowing agent used chlorofluorocarbons. In an attempt to reduce pollution, NASA then changed to HCFC 141b blowing agent, which resulted in increasing loss of foam due to popcorning.

I'm not sure that at that earlier hearing it was made clear that there are two different techniques for applying foam, and that the agent was changed in only one of those. You might conclude from that earlier hearing that the probable cause of the foam coming off, which caused this accident, was because of the change in the use of this agent.

Would you explain, please -- I know you do this in your accident report, but that may not be as widely read as the record. And in this previous hearing the implication was that if we hadn't been so concerned about the environment and kept on applying the foam

with the chlorofluorocarbons that we probably wouldn't have had this accident. Can you set the record straight?

GEHMAN:

Senator, I presume that's -- may I answer that question?

BARTLETT:

Yes, sir.

GEHMAN:

Yes, sir. You're exactly right. The change in blowing agent, even though it did cause, in the next two flights, a dramatic increase in the number of pieces of foam that came off, that was fixed right away. It was immediately taken care of. And the board attributes not at all the change in blowing agent to this accident.

Besides that, we're talking about two different foam areas. The popcorning occurred in the vast acreage of foam that goes around the tank, and we're talking here about the bipod ramp, that wedge-shaped handmade piece of foam, which has come off only seven times that we know of.

BOEHLERT (?):

And, Admiral, that foam was never changed, is that correct?

GEHMAN:

That foam has never been changed.

BOEHLERT (?):

Thank you.

GEHMAN:

It's been laid up the same way all the time. So the change in blowing agent had nothing to do with this accident.

BARTLETT:

I appreciate that explanation, because when I sat through that former hearing, my impression I came away with was that, "Gee, we changed the application of the foam and that caused a whole lot more loss, the foam." Which is true. But it's the loss of popcorning which I gather were tiny flakes of foam which really were not a risk.

GEHMAN:

I don't know that they're not a risk, but they did not cause this accident. And in any case, it was fixed. And the incidence of foam coming off was immediately, statistically reduced back down...

BARTLETT:

What do you mean by fixed? Do you now use chlorofluorocarbons for the application?

GEHMAN:

No, no, sir, no. Thousands of little tiny pinholes were drilled in the acreage foam to allow normal venting of the compressed gases.

BARTLETT:

Admiral, in the grand scheme of things, the amount of chlorofluorocarbons that would be used in these once-in-a-while applications of foam to this craft, it really didn't amount to much of an impact on the environment, would it?

GEHMAN:

I have no earthly idea to know how much. The main reason -- the testimony we received was that the main reason they shifted

blowing agents was because of the lack of availability of freon, as we used to call it. They just couldn't get the hundreds and hundreds and hundreds of tons of it that used to need.

BOEHLERT:

Thank you, Dr. Bartlett.

BARTLETT:

Thank you.

BOEHLERT:

Your time has expired. And I thank you very much, very distinguished scientist, that you are, for bringing that to our attention. Because the theory advanced by some that this tragic accident occurred because NASA was required to adhere to certain environmental law, that theory doesn't hold water.

Secondly, NASA has had repeatedly exemptions from EPA.

And so, I'm so glad, Dr. Bartlett, that you brought that to our attention. And it means more coming from a distinguished scientist. Thank you very much.

The chair recognized Eddie Bernice Johnson.

E. JOHNSON: Thank you very much, Mr. Chairman. And I apologize for having to run to the floor for a resolution. I'd like to express my appreciation for you continuing these hearings.

And I'd like to thank Administrator O'Keefe for agreeing to appear here today, and the admiral, for returning to answer questions on this most important hearing on the Columbia Accident Investigation Board report.

Today, we are brought here, again, to discuss the accident and the report to protect the safety and integrity of the future of this country's space program. We must learn from the mistakes of the past. The report from this investigation will allow us to see what went wrong, how to prevent it from happening again, and it is essential that we put forth concerted effort to protect the safety of our astronauts.

Unfortunately, we see in the report that there was pressure from the leadership that led unsafe practices. One of the biggest concerns I've had with this current NASA administration has been the privatization and competitive sourcing of governmental functions. Throughout the '90s, the shuttle workforce has shrunk. And from 1992 to 2002, NASA's shuttle workforce was reduced by more than 50 percent, and the shuttle contractor workforce by more than 40 percent. The report documents these facts, as well as the fact that the diminished capacity of the NASA shuttle workforce as a factor in the Columbia accident. And I find this quite alarming.

We can no longer pass blame or hide behind ignorance when we discuss safety of our astronaut corps. It's time we stand up and face the music of the mistakes made, if not only to honor our brave heroes who have passed because of our arrogance or failure to see the errors of our ways. That is the least that we owe to their memory.

So Mr. O'Keefe, I'd like to ask you how many people will you be hiring within NASA to enable you to meet the return-to-flight recommendations?

O'KEEFE:

We're just beginning to develop an estimate of exactly what kind of internal hiring of U.S. government public servants will be required.

It will be at least on the order of a couple of hundred that will be associated with the NASA Engineering and Safety Center that we

announced a couple of months ago, and it will be initiating on the 1st of November. And then, looking at all of the recommendations that have been made and the options we will choose to implement them, we will hire as necessary engineering, technical and management staff as appropriate in order to carry out the options we may choose to go forward with the recommendations.

O'KEEFE:

On the basic assumptions though of what the distribution is of what we do at NASA as a public service relative to contractor folks comparison, there was a very instructive congressional budget office report that was released about a month ago that concurred what we do within the Shuttle Program Office with a number of other major systems integration efforts that go on across the government. And it found that what we're doing is not substantially dissimilar in that regard.

So, Mr. Chairman, if you would, I'd like to submit this CBO report for the record...

BOEHLERT:

Without objection.

O'KEEFE:

... as an interesting observation I found in reviewing a number of other comparable major programs that require system integration work. We're roughly of the same order and magnitude of that same kind of distribution in comparison of public versus private functioning.

But, we will be looking at additional folks to be brought in in order to assure that independent engineering expertise that the board has called for in the course of its commentary, as well as to sure up the safety objectives that we need for our public servants to do so.

E. JOHNSON: OK. As you know the report reinforces gold is the McDonald's conclusion that the workforce was being severely strained by schedule pressures and by the inability to oversee the contractor workforce effectively. And concludes that the balance between NASA and the contractor workforces have become skewed and strongly implies that NASA needs to beef up its workforce significantly.

So, once the shuttle has returned to flight, how many people will NASA need to hire in order to assure a safe shuttle program?

O'KEEFE:

I don't know. We're going to need to inventory again each of the options that we would select for compliance with each of these recommendations and that then will yield a number of how many people we hire.

E. JOHNSON: How much will that workforce costs on an annual basis? I guess if you don't know how many you're going to hire, you don't know that. But, how much have you requested in the budget?

O'KEEFE:

Again, the budget right now has not been amended or adjusted in order to reflect what we believe would be the return-to- flight cost. When those estimates have been developed we will certainly submit it expeditiously to Congress for your consideration.

BOEHLERT:

Thank you very much.

O'KEEFE:

Thank you very much.

BOEHLERT:

The gentlelady's time has expired.

The gentleman from Florida, Mr. Feeney, five minutes.

FEENEY:

Thank you very much Mr. Chairman and we're grateful for both of you being here. We appreciate it Admiral Gehman's testimony last week.

Mr. O'Keefe, you and I were together on a very sad occasion on February 1. We were with, amongst others, Congressman Weldon from Brevard County and of course, Majority Leader Tom DeLay during a very, very sad day.

I want to focus briefly on some conversations you and I had before that disaster because the truth of the matter is that I really respected what you were doing and where you were going, getting the full account not just of the accounting books and balance sheets for NASA, but also the resources, the capabilities and you and I talked about developing a long term strategic vision and I understand while I've been busy in two other committees that you have talked a great deal about that vision. And of course, we'll be continuing to pursue that because all of us are looking forward to the future.

But, I will suggest that one of the things we've also talked about is that there has to be a balance in terms of safety, but also getting things accomplished. This is an inherently risky business. I think most people that support man space flight accept the notion that this is an inherently imperfect process as long as human beings are going to be involved in it.

The safest advice I gave my clients when I was lawyer, but I had to stay out of court was to stay in bed every day. And the truth of the matter is you get very little accomplished if you are going to be using safety as your only goal. And I think that Admiral Gehman and his suggestions have been very important in noting that we can do a

lot better on safety with respect to technical aspects, to culture, et cetera, but that safety can't be the only goal or we're never launch men and women again into orbit.

I am interested in a conversation you and I had before the disaster and that was one of the first things you did when you took office was to use the benchmark study of the Navy's nuclear submarine program. I think that you and I talked about how instructive that could be in many ways and it becomes even more pertinent after the disaster on February 1.

I want to quote a letter that you sent to the Navy secretary back on June 13, 2002. You said, "NASA's space shuttle and international space station program managers are facing many challenges, including maintaining products, quality and safety, accomplishing required performance and safety upgrades and maintaining a skilled and motivated workforce in the face of budget and schedule pressures."

I think you basically encapsulated a lot of the challenges facing NASA that sort of in some ways all came to a head on February 1. A lot of what you had to say before the disaster parallel what the CAIB report is suggestion that we need to do to improve NASA. Six months before Columbia, something about NASA's safety culture caught your attention and your eye and I wonder on the first hand, if you could share that with us and secondly, I wonder if with respect to Kennedy Space Center's quality assurance procedures, General Deale is part of his contribution to the CAIB report said as follows that the NASA ought to -- and I quote him -- "perform an independently led bottom up review of the Kennedy Space Center quality planning requirements document to address the entire quality assurance program and its administration."

You've been very proactive and very generous in accepting the critique in the Gehman report. I think you've accepted it in a most magnanimous and important fashion. I hope that everybody throughout NASA will do that. I would like to know specifically with

respect to General Deale's recommendation how you intend to approach that.

O'KEEFE:

Yes, sir. Thank you very much. On the first set of issues, in terms of what were the influences that kind of provoked me to look towards the benchmarking with not only the submarine service, but also in naval reactors community. And I guess it kind of goes back to in vitro. My dad was one of the original HD Rickover Backalights (ph) within the Navy Nuclear Engineering Program, he spent an entire career in the submarine service as an engineer, so I grew up with this around the dinner table listening to the kinds of concerns that that community has and the ethos that that community has about safety and the objectives that need to be accomplished there.

Now, when the thresher when down in the '60s when I was a little kid, I can recall very specifically an awful lot of real tight lipped, tight jawed folks around the Portsmouth (inaudible) shipyard, which is where were stationed at that time. And it was the beginnings of what's now known as the Sub Safe Program. And years later then having the privilege of serving as Navy secretary and working with the naval reactors community, the submarine force again in that capacity, I found the ethos of what they are engaged in and the way they diligently pursue these efforts for safety as well as operation conditions, balancing both objectives, as being the closest comparable community to our own.

And in that regard, asked Admiral Skip Bowman, who is now the successor to Admiral Rickover's legacy as the naval reactors chief today, attended the very first launch I ever went to. He was with me there and that was the first time he'd seen one. We compared the processes and the systems to the complexity of a Trident submarine. And the very same kinds of approaches have to be taken there. And he then helped, along with then Secretary Gordon England who was on his way back to that capacity, to initiate at our request a benchmarking effort that again, as you cite, in December

released its first effort for that particular benchmarking procedure within in the submarine program and then with the enable reactors community, most recently in July of this year.

So, an awful lot of what we've garnered from this effort that went on well before the accident occurred just didn't appear in time, clearly. And it's the same thing. We're not going slow up on that effort. It's something we have to redouble our efforts to implement. The cooperation and the assistance from the naval reactors community, from Admiral Burman, specifically, and from all of his principal staff has been exploratory.

Our chief engineer today is a fellow who spent an entire career in the naval reactors community and has been brought over as the chief engineer of NASA. So, there is a lot of cross polarization going on here in order to ensure that that ethos is infused.

As it pertains to the second part of your question and the other observations offered by members of the Columbia Accident Investigation Board, we will treat that like everything else. There are two categories in our implementation plan, which very clearly delineate 29 recommendations that have been faithfully recorded by the Board and then what we characterize as the raise the bar inputs. And in that will be all of anybody and everybody's inputs to include other members of the Board who offered supplement reviews or whatever else. We are not going to discriminate between and among the coed origin of various ideas may come from. Instead, we want to work (inaudible) through each of those and make sure there's careful consideration to all inputs that we receive. We want to make sure that we make this a stronger, safer, procedure before we return to flight.

BOEHLERT:

Thank you very much. The gentleman's time...

FEENEY:

Thank you very much. I appreciate the inquiry.

BOEHLERT:

... has expired.

The chair recognizes Ms. Jackson Lee.

JACKSON LEE:

Thank you very much, Mr. Chairman. Again, let me thank the chairman and our ranking member for the full committee and as well our chairman and ranking member for the Subcommittee on Space and Aeronautics. Also, these detailed hearings that I find very, very effective.

Mr. O'Keefe, I want to join in the premise of the ranking member that we're not attempting to find blame for blame's sake and I join him in that, but my approach has been that until you hold individuals accountable, until you respond to the very core of the problem and begin to shine a light, it will be difficult to correct whatever the culture might be represented to be and certainly NASA's had a wonderful history.

Needless to say as we began the hearing last week, I read the names of the Columbia Seven. We could read a number of names of individuals who sacrificed their lives in the course of the great mission of NASA. I think we owe all of them enormous debt of gratitude and I mentioned last week that we hope we will get congressional gold medals for the Columbia Seven. But, we owe them an enormous debt of gratitude by way of such recognition, but we know that we owe them a debt of gratitude by way of what we do from this day forward.

So, I first want to say to you that I think the return-to-flight effort report that came out certainly has a lot of strength to it and I want to note in particular two points about starting the review of the several thousand waivers of shuttle safety requirements to determine

whether they were justified and I would imagine the public would not even be aware that we engage in thousands of safety waivers with no notice to the public as to whether they were justified or not. I'm sure there were individuals who thought so. But certainly in light of the tragedy we would raise the question.

The other I think is very worthwhile and that is of course to add cameras to the shuttle and the international space station to try to document launch damage and you imagery from ground aircraft and ship based sources. Again, a simple feature, a camera that wasn't even on board in place in 2003. We've had camera around for at least a century.

So, I guess my line of questioning will lead as follows and I would like to engage NASA on the premise that I said not blame for blame's sake, but to be able to find good solutions. The work of my colleague and might I mind my manners and say to Admiral Gehman again -- we'll say it over and over again -- and to your board, a very, very effective report of which we can use as a very effective, if I might use the terminology, road map to get us where we'd like to go.

But, as I've looked over some of the regulations and prophecies of NASA I think more work needs to come. So, Mr. O'Keefe, let me refer to some testimony that was given last week by, I think it was Major General Hess. I asked him to give me a sense of how the military operates. And they operate by way of finding out what happened and then accountability. And there is a level there where they're individuals who are removed.

First, I'd like you to give me a list -- not by name, I can engage you one on one on that -- positions that we now know people who have been moved. I liked to know what has occurred with respect, I believe to the deputy administrator who was in charge of flight operations, if you will, again, not calling names, but whether there's been any action. But, I want to know the list of positions that

individuals held that no longer are in place or that they have been move as a response to the Columbia Seven tragedy.

I also will be, as I indicated, filing whistleblower protection legislation within days dealing specifically with NASA. I am not happy with the approach. I understand there's a hot line that the OIG utilizes. I will be seeking to find out whether the OIG received any such calls during the course of the Columbia Seven launch and what happened with those calls.

I do not know whether or not the OIG is to be a witness, Mr. Chairman, but I would want to call the OIG to this hearing room and to ask what circumstances or what actions occurred around Columbia Seven and whether any calls came in at that time.

This is a question to you, Mr. O'Keefe and I thank you for your presence here. On August 29th there was a message sent out to the NASA family. In that e-mail you address a perception reported in the CAIB report among some employees that it is not safe to report problems without risking retaliation.

It is noted that this is not something that is attributable to you, Mr. Chairman. It has happened in past administrators. There is a fear that if you tell about problems it may not be that you're immediately eliminated, but your life becomes a life of misery, that many of the individuals in higher positions are those who happen to be friends of the administrators. And so, if these criticisms are true or even if they are perceived as true, you have a huge challenge on your hands.

How can we get the talented technical people at NASA motivated to speak truth to power -- terminology used by a civil rights group -- within your organization when they see it run by yes people and they fear for their careers? And can we assure that there is no way for NASA management to discover who has made a complaint to the NSRS system so these employees can be protected?

Finally, it is interesting that out of almost 300 interviews conducted by the CAIB no line employee ever choose to treat their interview as a public, unprotected event. Every one of them wanted secrecy. How can we break this culture and when are we going to start breaking this culture and as well, in noting the report on the return-to-flight, I think were very admirable that associate administrator for space flight, William Ready said he's a flight engineer and a pilot, I believe. He doesn't know anything about this culture thing. There was a culture that stifled communications that somehow we have to eliminate. He doesn't know anything about it. We have to get some other people in here to help them.

Where do we go from here on those questions?

O'KEEFE:

Well, I'm going to attempt to respond to all the points you've attempted to raise here and I'll try to be brief and that will be a challenge here. But, I think you've raised some very important questions. First issue on accountability, there is no question. There is no doubt, please make no misunderstanding. The accountability starts with me. And I'm responsible for what the activities are of what goes on in this agency and I am personally accountable for that activity.

I've offered a witness statement to the Columbia Accident Investigation Board. It is not privilege statement. It is open testimony. So, it has to begin with me and it has to begin with every leader in this organization to make that kind of change.

Now, to one of the questions that you raised in the course of your commentary...

JACKSON LEE:

The list of people that have been moved by position.

O'KEEFE:

I was just about to get there. I apologize for not getting there promptly enough. There are four space flight center directors. All four of them are new within the last year. Three out of those four are new within the last seven months. The deputy directors of those four space flight centers, two of those four are new in the last seven months. Within the shuttle program itself, 14 or 15 of the senior management of the shuttle program are new in the last seven months.

And I'll give you four accounting for the record of every other move that's been made, because I believe this to be not just a space flight, not just a shuttle program set of issues, not just any individual center, it crossed the entire agency. And so as a consequence you've seen very significant change in the last year in the senior leadership at almost every position. Three quarters of the leadership of this agency is different today than it was a year ago.

And in the course, that is the leadership team I believe that is going to lead up from this point forward to be responsive in these situations and as consequence of that, those who are not have been removed for a variety of reasons. They've either left the agency, they've been reassigned, they've been relieved, and any number of different cases and each is a different story.

Which gets to the second point, I believe, powerfully you made in your commentary, which is the last thing I want to do in the course of this is contribute to this retaliatory atmosphere that is asserted very clearly by the Columbia Accident Investigation Board's report and the conclusion that each of the Board members have reached, which is they've witnessed the same behavior themselves in addition to recording how they believe that acted it's way through the investigation, which is what prompted me to put out the message that you very thoughtfully read. And again, it is one that I stand by. I think we must enforce, we must be serious about it and the very clear message to all the leadership of this agency is we cannot tolerate that repression or suppression of any observation of

safety concerns, difference of view, but we also have to have responsibility to resolve those issues and move forward.

I think as Congressman Feeney very thoughtfully observed, we have to balance those two or else we spend all of our time debating the question. So, as a consequence it works both ways, the leadership must set the tone for that. I believe the leadership team that's in place today, have been put there recently, comparatively speaking, because though we manifest that kind of characterization and they'll remain there until such time as they fail to demonstrate those characterizations as well as behaviors in the future.

Finally, one approach that we will look to, to try to sort through and be sure that anyone out there, if they don't want to use the IG hot line, they don't want to use the NASA safety reporting system, which again, permits anonymous reporting, none of which was recorded during the course of the operation or during the STS-107 flight at all. There's any number of ways to (inaudible) that. We'd like to create yet another possibility to do that, which is any one on any day at any time to observe that if they feel that they cannot raise their point of view or if it's suppressed in that process that we create an ombudsman system that is so common in so many other agencies, in order to ensure that these are one (inaudible) and resolve.

But, first and foremost it has to start and stop with the leadership mentality and attitude and that's what I'm committed to assure that we infuse in this agency. I think we're going down that road to do so. The changes have been made in order to implement that and this leadership team is up to that challenge.

JACKSON LEE:

Will you...

BOEHLERT:

Thank you very much. The gentlelady's...

JACKSON LEE:

Would you be happy to...

BOEHLERT:

... time has expired.

The gentleman...

JACKSON LEE:

Mr. Chairman, can I just get him to...

BOEHLERT:

... is recognized from (inaudible)...

JACKSON LEE:

... would he be able -- could he work with me on the whistle-blower legislation?

BOEHLERT:

The gentlelady should understand this is a committee of nearly 50 members. This committee tries to be indulgent to every single member. Five minutes, opening questions. Your opening question lasted seven minutes, just the question. The chair is trying to be very fair to each and every panel member. But, each panel member has to be fair to other panel members.

JACKSON LEE:

I respect that...

BOEHLERT:

The chair...

JACKSON LEE:

... Mr. Chairman.

BOEHLERT:

... now recognizes the gentleman...

JACKSON LEE:

And I have been considerate...

BOEHLERT:

... from Michigan, Dr. Ehlers.

JACKSON LEE:

... of others as I've listened to them go over the time. This is an important question and I respect...

EHLERS:

Thank you, Mr. Chairman.

BOEHLERT:

Every member has important questions.

JACKSON LEE:

And I respect that.

BOEHLERT:

Ms. Jackson Lee, I would like to emphasize that.

JACKSON LEE:

Good. And I respect that aspect...

BOEHLERT:

Your time consumed 14 minutes and each member is allocated five minutes so there will be a second round...

JACKSON LEE:

Well, I'll wait for the...

BOEHLERT:

... and then (inaudible)...

JACKSON LEE:

... documentation of 14 minutes.

BOEHLERT:

The chair recognizes Dr. Ehlers of Michigan.

EHLERS:

I hope that interchange didn't come off my time.

BOEHLERT:

It did not.

EHLERS:

Thank you, Mr. Chairman. That I'd like to just also add to Mr. Feeney's comment, the only safe place is being in bed and I should point out that more people die in bed than anywhere else. So, you can't win.

I apologize for having to step out for a few minutes, because I had to give a speech elsewhere and I was going to ask you about the

next space vehicle. I understand that was asked, so I'll try not to repeat this, but I'm anxious to get past the Columbia and we have a complete report on that. We know what went wrong. We'll try to correct the procedures. But, I'll like to look down the pike.

People talk a lot about a grand vision or a vision and that's part of it, but I think we should be thinking of 30 or 40 years from now, where do we want to be. And in particular, I think a very basic decision is to what extent do we want to engage in human expiration of space. Are there people talking about going to Mars? I think that'd be a very unwise decision to make unless you develop far better propulsion systems, far better life support systems. At this point, given what we know, it's simply not worth the dollars. And we ought to recognize that.

We have the space station up there. We have to service it, but it looks like we don't even have enough money to do that. And that NASA basically, intrinsically is a science agency. We have to make sure we have the money to do the science that's important and I understand that $40 million was cut from that program recently and I don't know if it's going to be used for the shuttle or other things. But, over the years, NASA's total budget has gone down, but particular the science budget has had difficulty.

That's open (inaudible) to just asking you, Mr. Administrator and I'm very impressed with you as a person and I'm impressed with the work you've done. I'm pleased to see you there. And I'm interested in your personal vision, how you plan to tackle these problems.

First of all, guiding the American public and therefore the Congress, in decision we have to make about human space flight, because that's the expensive part. Secondly, what is your long-term vision of the science, how we should handle that, how we are going to allocate resources to that.

So, I'm getting a bit at what you see and I don't want you to -- I will specifically say that neither I nor the world should tie you down to

what you say right now, because you may not have had time to think through all that, but what is your thinking about the process you're going through? And then particularly in designing the next space vehicle, the last attempt I was totally unimpressed with. I went out to look at the project, came away with the idea that this was not going to fly, it was a waste of money and a year later it ended at I think a total expense of a billion dollars, public and private.

We need a thoughtful, careful approach. How do you plan to approach that?

O'KEEFE:

Thank you, Congressman. I guess the first observation would be at the premise of your commentary, at the very beginning or preface of it I should say is we want to look past Columbia. And while that's true in terms of looking at what these larger and broader expiration objectives should be, I must tell you in all sincerity, I can't look past this accident. There is no way. I can't take my eye off it for one second, because we have to learn from this institutionalize that learning, fully understand what the lessons from that are to ensure that we lower the probability that this will ever, ever happen again. You can never eliminate the risk, but we sure can do better than we done.

And this is one that I don't want to even forget about that for a second of the day, because it is imperative that what we do today, tomorrow and the near term must be done as safely as we possibly can. But, at the same time, driving towards those larger objectives.

So, I take your point, but I appreciate your indulgence on the clarification of that issue that I really have to deal with. It's a responsibility that I think is something that is absolutely insurmountable. There is no way we can move past that.

In terms of where do we want to be, we can put your finger to it right. It is in the strategic plan that we've developed and the approach we're using now in order to try to layout what that broader expiration policy objective should entail, we have to begin with the premise as you said so exactly. There are limitations on power generation, propulsion and human endurance that we must conquer or else we're just dreaming.

And so every one of those is the kinds of things that the Congress, this committee has been extremely supportive of. The House demonstrated its commitment on this point, I was impressed to say, before the August recess on a contest of exactly this point when the issue was raised on reducing the resources necessary. There have been budgets, part of the president's budget for Project Prometheus, which is specifically designed in order to conquer this limitation on in space propulsion and power generation.

If we don't move past where we are today on chemical propulsion and the basic way we've been doing business with improvements of incremental nature, of course. For the last three to four decades, we're never going to get out from underneath the limitations that are always going to stop us from any exploratory effort that requires you to get there soon and do it in a way that doesn't require nearly the fraction of mass that today is just an inhibitor. It stops you cold because it requires so much volume.

So, moving in that direction, we've put in a very aggressive program in that direction. Project Prometheus is funded to the point of being able to demonstrate that technology on future missions and as a consequence the support from the Congress has been absolutely unbelievable. Very impressive and we are deeply appreciative to you and to all members for exactly that focus.

On the issue of human endurance, I think that's exactly what station is giving us today is the capacity to understand what it's going to take for folks to survive this experience for extended periods of time. In part it relates, as you know far better than I by virtue of your

scientific background, and understanding of the human capacity in order to sustain, through some very unusual conditions relative to what we experience here on Earth.

And we can only discover that; really understand those effects, a Board at a national space station. So, so much of what we're doing in terms of the scientific portfolio or the agenda is driven by principally biological and physical research and materials research on international space station. That's the liberation that has come from the re-map exercise that we engaged in just last year, that Dr. David Shirley, a nuclear physicists and Dr. Ray Silver a chemists helped us get to with all the disciplines necessary represented in order to identify where should those priorities be aboard station for what the scientific objectives ought to be in order to understand that and it principally turns on issues of human endurance.

And if a capacity of people to withstand the unusual combination, the amazing combination that only exists in that micro gravity condition of rapid of acceleration of cell growth in some cases and rapid deceleration in others. We can't explain that. And until we do, that question of boarder expiration objectives et cetera becomes something that's inhibitor constantly in terms of longer-term human objectives. So, in the end, those three issues, if we can conquer those technology limitations and the capacity of humans to endure, we can do this.

Finally, on your point of exactly where the science priorities ought to be and how do we balance those, today, a third of the overall NASA initiatives are related to space flight objectives for which humans are involved. The other two thirds focuses on robotic means, a number of different capabilities and again, represented by the strategic plan are intended to be the stepping stones, the path finders, if you will, in order to determine exactly the approach we'd use to conquer those three objectives.

So, the ultimate vision or objective would be that we're starting with as we begin this larger expiration policy or vetting process that

we're into now is to start with this as a baseline, recognize those three primary limitations on any vision objective that need to be conquered, redouble of efforts to ensure that we do so and again, to continue to encourage the Congress' support as has been so handsomely demonstrated that we move ahead with the budget proposals we've already made and that are fully financed in order to conquer those three objectives. That's extremely helpful. That's the direction we're going and as we refine this particular vision as manifested in the strategic plan; I think that's going to give us a greater path in that direction.

BOEHLERT:

Thank you very much Mr. O'Keefe. The gentleman's time has expired.

The chair recognizes for five minutes Ms. Lofgren.

LOFGREN:

Thank you, Mr. Chairman.

Before I get into my questions, I'd like to express my thanks to you, Admiral Gehman, for your hard work and excellent report and great leadership.

You know, I'm a fan of the National Archives and on the outside of the National Archives it says the Path is Prolog and I think it's worth thinking about that phrase and so I'd like to revisit how we got here and one of the things I think is important to do is to follow the money.

Administrator O'Keefe, if you'll recall during our first Joint House/Senate hearing into the Columbia Accident, I asked you a question about shuttle safety upgrades and to refresh your memory the question was were there any shuttle safety upgrades proposals, recommendations or projects presented to you either as NASA Administrator or in your former capacity at the OMB that you did not

support and if so, what were they and why did you reach the conclusions that you did? And you said that you could not recall any.

Recently, the committee received a written response for the record that I think is misleading and it states in part, quote, "Administrator O'Keefe has not rejected any shuttle upgrade proposal as NASA Administrator or during his tenor at OMB. The administration prepared and submitted to Congress in November 2002 an amendment to the fiscal year '03 budget request to increase the funding for upgrading the space shuttle system by approximately $660 million for the fiscal year 2004-2008 timeframe."

The response goes on to detail several specific safety upgrades that were in fact canceled during this administration, including the elected auxiliary power units because of, quote "cost growth of technical immaturity" and I'm not sure I know what that means. "The administration's positions seem to be that safety upgrades will be funded unless they cost too much, in which case they will be canceled." And I think this is a funny way to run a safety program canceling an expensive program does not mitigate risk, it only mitigates costs.

One final issue of note, "This committee on a bipartisan basis has been attempting to obtain full budget documentation over the past ten years for the shuttle program and for NASA's safety program." Chairman Boehlert and Mr. Hall have requested in writing from you in (inaudible) budget request, NASA's request to OMB and NASA lawyers, I understand, had been claiming deliberative process protection while they're reviewing the documents. I think it's unfortunate that this committee will probably not see any of these documents unless our chairman is forced to subpoenas for them.

LOFGREN:

Mr. O'Keefe, your early response to be on the record indicated that you have not rejected any shuttle safety upgrade proposal either as

NASA Administrator or Deputy Director of OMB. I would point out, however, that the CAIB report notes that the administration's fiscal year 2003 budget requests for shuttle upgrades with a 34 percent cut in the fiscal year 2002 planned level. That's on page 114 of the report. The report fails to note that it is a fact that the fiscal year 2002 level also represented a significant cut from the fiscal year 2001 planned level. In other words, by fiscal year 2003, you had made cuts totally hundreds of millions of dollars over five years from the totals approved by your predecessor, Mr. Goldin.

When the Bush administration canceled any hope of a shuttle replacement when they terminated the X-33 program in 2001, it became obvious that the human space flight program was going to be dependent on the shuttle for a very long time. At that very point when the termination length and the effective life span, OMB cut the shuttle upgrade budget by hundreds of million of dollars over the next five years. So, I have four questions.

First, do you dispute these figures showing significant cuts in the shuttle upgrades program while you were at OMB and at NASA? Number two, why did you make these cuts? Number three, the committee's leadership on a bipartisan basis has asked you in writing for copies of budget documents that would give this committee an assessment of how shuttle safety budgets have been treated by NASA, OMB and Congress over the past ten years. This is not a partisan request and in fact, most of the time period covered is in the Clinton years. You have so far not provided us with these documents. Will you commit to us today that these documents will be provided for the committee on a bipartisan basis (inaudible) constitutional oversight function?

And finally, I find it disturbing that, as I understand it, $40 million has been shifted from centers who are doing basic science research and my question is, when will that money be returned to the centers? Thank you.

BOEHLERT:

The gentlelady exhausted 4:53 with that question and we will give the administrator -- because of the importance of the question -- ample time to respond to that.

O'KEEFE:

Well, thank you, Congresswoman. I appreciate the questions and I'll attempt to kind of work through them. I, again, stand by my prior testimony and I understand your concern with the written response for the record and how it may be misleading. But, I'll have to go back and take a look at that to see where it could be, because I don't believe our intent was to do that in any way, shape of form.

We certainly do not and so do I dispute the figures? The answer is let me take a look at the exact figures we're talking about here, but I think, as an overall matter, I stand by the previous testimony, which is we have not to my knowledge, nor of anything I've seen presented reduced the specific upgrade request. And indeed, if anything, as part of the amendment for the president's budget last November attempted to, as part of the service life extension program, inventory all the upgrades that may be candidates in approaches to taking improvements to the shuttle program in an organized way and a more comprehensive way as we go through this and have funded it as such.

Second question was why the cuts? I don't know that we did, and again, I'm prepared to be corrected in that view. When I go back and take a look at the side-by-side comparison sheet you've so thoughtfully offered here of what's involved. I've been looking at page 114 and I guess it doesn't jump out at me right away of where this is. Today the shuttle upgrade budget, by what's been documented in the report of $347 million, which relative to what it was just at the end of the last decade was $175. So, that's still near doubling of that across the way.

So, let me get you a more precise answer to that and I'm looking at the same graphic and I see that we've been increasing in that regard. To my knowledge there has -- and again, I emphasize...

LOFGREN:

This is the third paragraph on the second side.

O'KEEFE:

OK. Third paragraph on the second side.

(CROSSTALK)

O'KEEFE:

... NASA's concern the shuttle required safety-related upgrades. The president proposed NASA's budget for '01 proposing safety upgrade initiative. This initiative had a short life span -- is that the paragraph you're looking at?

LOFGREN:

No. A year later the fiscal year 2003 request contained a plan to spend $1.220 billion, a 34 percent reduction.

O'KEEFE:

Oh, I see it. OK, excuse me. A year later the fiscal year '03 requests contain a plan to spend a 34 percent reduction. Let me go back and see what the exact comparison is there, because again, that's part of the '03 budget, if you recall, the president's budget included a specific entry to corral up all this into the service life extension program to then organize and prioritize those specific upgrades that would be required to increase the shuttle safety as well as improve its service life performance over the time of that. And to the extent we have a disconnect here, let me reconcile that I'll go back and dig into the numbers and see where we are.

The third question you asked is the committee request for information. I apologize. I thought, Mr. Chairman, and Mr. Hall or Mr. Gordon that there was a specific understanding with the Office of Management and Budget I'm advised in which they're prepared to walk through all of that with members of staff, with members, whatever, that may go through that entire accounting of the last decade. That's where I left this a couple of months ago and I thought that had been done. I will go back and assure that that's the case. But, my last discussion with the OMB general council was a more than willingness to engage in that discussion.

BOEHLERT:

They have not yet indicated that more than willingness attitude toward us and we look forward to hearing from them.

O'KEEFE:

I'll fix that. As soon as I leave this hearing, sir, the next call will be to our friends over there who have assured us on several occasions that they're prepared to sit down with staff and members at any time and walk through what those comparative differences were over the course of the last decade of various agency submission to the Office of Management and Budget.

BOEHLERT:

We will be very receptive to that message from OMB. And I'd like to ask Admiral Gehman if he would care to comment on this general thrust of questioning?

GEHMAN:

The board attempted to document as best we could the fact that the shuttle upgrade program has been underfunded for decades. And our point was not to point blame at either the White House or the Congress or at OMB or at NASA, but to document the point that the reason why the shuttle upgrade programs are continuously

underfunded is because of a lack of an agreement of how long the shuttle is going to service. And therefore, no one can agree how to amortize billions of dollars of upgrades whether we'll have to amortize them over 5 years or 25 years, because nobody knows how long the shuttle is going to last. So, that's what our point was.

BOEHLERT:

Thank you very much. The gentlelady's time has expired.

Dr. Gingrey?

LOFGREN:

Mr. Chairman, I don't want to (inaudible) deserves one more question and maybe I can get that in writing from the Administrator, the fourth question.

BOEHLERT:

By all means you can submit it in writing and then the response will be in writing.

Dr. Gingrey?

GINGREY:

Well, thank you, Mr. Chairman. I'll try to shorten this up a little bit for you.

My colleague on this side of the room, the gentleman from Florida, Mr. Feeney earlier commented that his advice to some of his clients he had as an attorney is the only way to totally eliminate risk is of course don't get out of bed in the morning. And as a physician when I took the Hippocratic oath many years ago I remember most vividly the admonishment in the first place, do no harm. And I think really this whole discussion, this whole hearing, the whole issue is about balancing achievements in the program and safety and not putting

anyone at unnecessary risk and I don't think we can overstate that or emphasize that.

I would like to ask Admiral Gehman to comment on this. It does seem to me that in the report and in the hearing, in the questions that the concern is a great deal or too much complacency developed within NASA and not enough attention was directed to the unscientific Murphy's Law. And I would like for you to comment on that, Admiral Gehman.

And most specifically, Mr. O'Keefe, the Columbia Accident Investigation Board apparently believes in the past the shuttle program had too much unchecked authority to write itself waivers. And in fact, some 2,000 were written for the Columbia flight. Yet it now appears that NASA plans to have the shuttle program review its own waivers before returning to flight. My question to you is shouldn't NASA wait to conduct this important job until it puts in place the independent, technical, engineering authority of some other oversight authority other than the internal.

O'KEEFE:

Yes, sir. You've hit on probably the building block or the fundamental finding of the board. And that is over the years, due to forces on NASA some forces internal, some forces external, but nevertheless due to forces that acted on the shuttle program over a decade or more, the investments that were made were made to increase the chances of meeting the schedule and other things such as basic research and development, basic engineering, basic studies into aging aircraft, attempts to fund for example, engineering efforts to reduce the number of waivers the shuttle was flying with rather than just keep adding. All of those kinds of overhead kind of programs were left unfounded.

In other words, it's kind of the cost of doing business. And that is alarming to the board and we believe contributory and it's part of a

cost of doing business in human space flight and you just have to pay those costs. And we think that we need to reverse that trend.

Complacency is word you used, it's not the word we would have chosen to use, but it clearly was a trend toward spending money on those kinds of things, which increased the assurance that you could meet the schedule, that the expense of the underlying engineering and research that needed to be done to assure safety.

Congressman, thank you for your very thoughtful question on both the waivers and the independent technical authority. This is a really important set of issues. Waivers, I think given the background that I come from, which again is more of a national security defense department kind of approach to what a requirement means. It is more like what most people think the definition of requirement is. You ought to be required to do it.

I tend to find at NASA that the requirements mean goals, objectives. It's much like the processes and procedures that we use for a variety of different activities. I think what has come out of this report, that is a real scales falling from my eyes kind of event that I found is that our procedures, the way we define things, what we do, the process that we engage in is a lot like the stop lights in Naples, Italy. They're all advisory. Follow them if you'd like. Don't follow if you don't. And that's something that has to stop.

Our definition of what a requirement is can't be just this goal that we put out there and say, we'd like to achieve that some day and maybe we will or maybe we won't. But, it has to be something we require that we do. And to the extent that there is a deviation from that requirement, we have to have a clear justification of that. And again, that's one of the really important things I think Congressman Feeney brought out in his commentary. Was it disciplined in the way that for example, the naval reactors community conducts this, where there's a clear understanding of why something doesn't comport with precisely the requirements and what you're going to do to go fix

it and how you deal with that. And that's the same ETHOS we have to adopt.

We have to get out of the mode of saying we have goals and objectives, we're going to choose some of them and not all of them on each and every flight. So, we have to go back and revise that. So, in that context, I think that's really what we're talking about by doing a closer drill examination of these waiver procedures now as opposed to later. Because it really cuts at the mindset we use here. We have to reverse that to being something that again, I think (inaudible) report prove to me it's safe, don't put the burden of proof on folks to show it's not safe. You have to go the other way to demonstrate that over (inaudible) is caution.

It cuts to the second point, I think very perceptively that you raised, which is you really can't afford to pass or take your time figuring out how to do an important function that they have identified in the recommendations here, which is to sever the specification and control of the specifications, the configuration control if you will, of what the orbiter looks like and what all its moving parts entail from the cost and schedule pressures. That's a very profound commentary by the organization of the way we manage ourselves as well as the procedures that we put in place that we sometimes, kind of, follow.

O'KEEFE:

And that's an important distinction necessary that we have to look at options soon rather than later in my judgment to sever those functions of the engineering specification configuration control independence from the cost and the schedule functions. I think that's something that not only pertains to the shuttle program; it pertains to everything we do, every program we're involved in. If you have the folks with the schedule, cost, and engineering specification pressure, all in the same room then trade offs are going to get made that will always be to the deference of the immediacy of today's problem.

The closest dog to the sled will always get the attention rather than the kind of configuration control integrity what the board refers to it again is more reminiscent of the organization background I come out of within a defense establishment. It really always has held out as a set of principals.

So, in as much as that recommendation, which encompasses many, many things as it pertains to independent technical authority. It doesn't necessarily need to be done by one monolithic organization or institution. Those individual functions can be divided into different organizational efforts, but the paramount principal that I read that is really quite profound in my mind is there has to be a severability between the independence of the engineering function and the configuration control folks who really maintain the waiver authority, if you will, from those who are driven by the cost and schedule and daily operational pressures that we all live with all the time. And...

GINGREY:

Mr. Gehman, would you care to comment on that?

GEHMAN:

No, sir. He has it right. The basic finding of this Board is that the morphine of these shuttle programs over many, many years to ring out of it the most cost effective, the most efficient kind of an organizational structure was done so at the cost of basic engineering and safety.

GINGREY:

Should NASA wait until an independent authority is set up to review the waivers or should there be some temporary system put in place? I mean there are 3,000 or so waivers. Some of them, 1,000 of them are more than a decade old.

O'KEEFE:

The board wrote in its report our attempt to answer that question and that is that we are confident that the zeal and the diligence that are associated with the first half a dozen launches after this tragedy will be so intense that they'll leave no stone unturned. But that, like all big bureaucracies over the years, they'll migrate back into bad habit. And if that migration back into bad habits is what our organizational changes are designed to do.

So, we have no reason to believe that they can't review all those waivers and get it right for the first couple of flights.

Mr. Chairman, if I could real quick, because this is a very important point and it's a difference in the way the board has taken this on in terms of how expedient we need to be about making decisions about this.

You've set it aside, I think very thoughtfully. Now, let's get a detailed plan together before you return to flight on how you do this. I don't think we can afford that. I think the approach we have to come to closure on is sooner rather than later, because for the same reason I think Admiral Gehman and your commentary exchange just reveals, over the course of time, the urgency starts to drift off. The urgency is now. People are really focused on this. Everybody's attentions had.

So, as a consequence, making this kind of organizational change, I think is something that we do it sooner rather than later and make a determination on how to do that we're better off than saying let's study the plan as we go along.

BOEHLERT:

How long is it going to take to do a proper the review with waivers?

O'KEEFE:

Again, I think the first step is if you do the major step that the board recommended, which is to have a severability between specification

and configuration control, from cost and schedule program management then it will really mushroom from there. I think it will really snowball in its affect of how fast you can do it. Particularly if you take another observation elsewhere in the report that says that the design, the drawings of the shuttle itself are in lots of different places. The original drawings are in one place. The engineering notices were somewhere else. The engineering changes were in another location.

So, just the act of pulling all those together, then it's going to have the affect in this new independent technical authority, wherever it's assigned and whatever option we choose is then going to grant a level of ownership I think, to the engineering team that says now I know exactly where all these pieces are. I have to put on some kind of a computerized design system. I can look at 3-D and I have all the updates of the engineering notices and that's the equivalency of starting down this road seriously to examine why waivers ought to be granted, if at all in any of those individual categories.

BOEHLERT:

Thank you very much.

Mr. Matheson?

O'KEEFE:

Thank you, Mr. Chairman. I appreciate your indulgence on that.

MATHESON:

Thank you, Mr. Chairman.

Mr. O'Keefe and Admiral Gehman, welcome to the committee.

I have a question for Mr. O'Keefe. If I understand that many of the Gehman recommendations are meant to implement in a one to five year time frame. And as I also understand it, the Stafford-Covey

Return-to-Flight panel which you've created is expected to function for about eight months.

And I'm wondering what mechanism you would recommend to oversee the longer term, the one to five year Gehman recommendations. There seems to me -- I'll just throw out three options before you answer and that is should the Aerospace Safety Advisory Panel assume the function or should Admiral Gehman be called back every year for the next five years or should a new group be created or how do you think we ought to handle that longer time frame?

O'KEEFE:

Well, thank you. I appreciate the question. The first step, again, in this very immediate near term is we'll assemble a group led by General Tom Stafford, a former Gemini and Apollo astronaut and Dick Kelley who is the pilot on the return to flight post-Challenger in September of '88. And they have, along with 25 other colleagues representing lots of different disciplines of engineering, technical, management change, organization, culture change, academics, industry types, you name it are on that particular team to oversee over the next two years they have been charted to do, the functions that we'll be doing in order to implement these recommendations.

The intensity of their focus of course will be between now and return to flight. And Admiral Gehman has it right. We're going to be all over this like a bad habit I'm sure for the next few flights. But again, institutional change is what is absolutely imperative that we do over time. So, in that regard, we're looking to again is the invitation I think the chairman has issued for Admire Gehman and his colleagues to come back in a year and take a snapshot picture of where we are. We'd welcome that and look forward to the opportunity to try to see where that progress ought to go.

The report of the Appropriations Committee, just the other day is now recommending that the Aerospace Safety Advisor Panel be

revised to more akin to what was intended when the Congress enacted this capacity in the post Apollo fire period, 1968 that go back to its root and think about using that organization or that entity as a means to do it as reconstituted and with new set of fresh eyes to it. So, we're going to take that seriously and I have some interesting suggestions and I think Admiral Gehman is opined about that in this floor at this committee as well a week ago.

So, all of those when combined I think is going to provide, in addition to the extensive, thorough oversight already provided by the Science Committee here as well as the Commerce Committee on the other side and the Appropriations Committee are continuing diligence that we will adhere to.

MATHESON:

Let me go to a different question, a separate issue. The Gehman report included a section on a possible rescue mission for the Columbia, leaving an impression that a rescue might have worked. What have you and others at NASA concluded about whether either a repair effort or a rescue mission involving another orbiter may have succeeded?

O'KEEFE:

I think that knowing the judgment on the part of all who participated in the exercise led by the flight director on the 107 mission as a matte of fact who organized it and responded to the board's findings -- and I'm prepared to be corrected by Admiral Gehman in terms of how that went down -- conclude that it could have been done. It was possible. But, it would have been very difficult. But that would under no circumstances had prevented us from doing so. I think anything that it would have taken, had we really focused and been able to concentrate on all the facts, had we been more diligent, whatever, in order to understand all the issues that we're pertaining here would have done anything and everything to have saved those folks. And I

don't think there would have been anything spared in the process of doing it. Even if it was a long shot.

GEHMAN:

May I follow up?

O'KEEFE:

Yes, follow up on that.

BOEHLERT:

Please do.

GEHMAN:

Just briefly because I know time is of the essence here. We were really trying to dispel myths. There are myths going around that foam can't hurt shuttles. There were myths going around, we couldn't have done anything anyway. There are all kinds of myths going around and we felt it necessary to start blowing holes in those myths and whether or not this rescue mission was plausible or not, it's extraordinarily risky, as Mr. O'Keefe said. A whole lot of "ifs" had to end up, but our real point was to start putting myths in their proper place.

MATHESON:

Thank you, Mr. Chairman.

BOEHLERT:

We (inaudible) to myths that we all acknowledge that in adherence to environmental laws somehow contributed to the accident? Thank you very much.

The chair recognizes Mr. Gutknecht.

GUTKNECHT:

Well, thank you, Mr. Chairman. This has been a very interesting hearing and I want to thank everybody here. Many of the questions that I would have asked have already been asked. But, I want to acknowledge Kathy Sawyer from the Washington Post and I don't know if you guys have seen this. And all of us have a difficult time wading through all these reports, but it really, for members who haven't read it it's probably the best chronology. It appeared in the August 24th issue of the Washington Post and I just want to give her credit.

And as I read it, it was interesting to me that the night before I read this there was a documentary and I'm not even sure which channel it was on about Apollo 13. And I was just struck, especially as I read this, how far we had drifted from the days of Gene Krantz and failure is not an option.

And I happen to believe that one of the most important words in the English vocabulary is the word "attitude." And as I read this, the thing that's the most haunting to me is the story of the engineers requesting the images.

GUTKNECHT:

And then it's well documented in your report, Admiral, there were numerous missed opportunities. And I'm just curious, I mean -- and for the members who don't understand and maybe haven't followed this as closely, I mean, there were a number of requests beginning on January 21st from -- as The Washington Post has a large group of Houston engineers responsible for troubleshooting, they asked -- wanted to make a formal request to get some images from our spy satellites, which may or may not have proven anything. We don't know that. We will never know.

But the truth of the matter is, we might have known very early on that there was a serious problem and perhaps a hole in that wing.

And let me just -- for the members -- let me just read what the article says. And I think the article is actually fairly generous.

It goes on to say, "As Columbia orbited, Manager Ham (ph) heard in phone chat that there had been a request for imagery and spent most of the day trying to track down its source."

Admiral, wouldn't it be fair to say that what really happened was she tried to quell that discussion?

GEHMAN:

We -- I believe that our report did a really fine job of pinning that down quite well. And our conclusion was that because they had a preconceived idea, an unshakable, deeply-held preconceived idea that foam couldn't hurt the orbiter, management considered that these requests for imagery were stray voltage and that she wanted to know where it was coming from. It wasn't that she was trying to quell it, she was trying to figure out where it was coming from. And there was noise in the background, but she couldn't pin it down.

Now, that action about trying to pin down where it was coming from could be construed as intimidating, certainly could be construed, but we didn't demonstrate it -- we didn't prove that.

GUTKNECHT:

Well, Admiral, with all due respect, no, you didn't prove that. Nobody can prove anything today. But it seems to me your report is actually pretty damning on that front. And I guess the real bottom line -- and the question really is for you, Admiral, how do you change attitudes? Because it just reads to me like -- and I think Mr. O'Keefe even said, you know, this has become bureaucratized and it's a job. We still use the word "mission," but it's much more of a job, it seems to me, the way I read this. And how do you get back to that sense of failure is not an option?

GEHMAN:

Yes, sir. Well, it is very difficult. And the board spent many hours trying to answer that question and to make sure that our recommendations were couched in terms that would hit that problem directly. And what we felt was that counting on really good people to be able to overcome organizational difficulties or mal-organized systems is a very poor way to do that.

It would be better to fix the organization. To bet that you can have heroic, brilliant, fantastic people at every single position and that they can overcome organizational difficulties is a bad bet and that we need to change the organization and not pick on the people. That's one thing.

The second thing is this much more difficult issue of -- you call it attitudes, we call it cultures. And that can only be fixed by leadership. It can't be fixed by -- you can't organize yourself out of cultural problems, was our view. And not just leadership at the administrator level. He's going to have to have layers and layers of leadership below him buy into this relief.

GUTKNECHT:

But, Admiral, can I just ask you to, kind of, go through this, why do you think that the request from Mr. Page (ph) and Mr. Derocca (ph) and the others never got above a certain level?

GEHMAN:

Mr. Chairman, I'm going to have to take a minute to answer this question, if that's all right.

It's complex, but I believe that the answer to your question is that there are two answers to your question.

The first answer is all those management people really did believe the commonly held knowledge that foam can't hurt the orbiter. And therefore all this e-mailing and all this questions about photography

and things like that were distractions, not relevant, waste of time, not well proved out.

The second -- which is erroneous, of course. It's wrong. But they were so widely held, and I believe that we have tons and tons of documenting evidence in here to prove our points.

The second answer to your question is a little more disturbing. We have in our report suggestions that because -- I've got to be careful here, because I want to make sure I say what's in the report and not go beyond it -- is that the flight schedule for the next 16 months included 10 flights. That's not possible. It's not physically possible to launch 10 in 16 months.

I believe that the managers were aware of that tight schedule and they were being careful not to allow administrative impediments -- by administrative impediments, what I mean was hazard reports or in- flight anomalies -- to rise up, which would delay a flight readiness review. I believe these managers knew the future schedule and therefore anybody who was bringing up problems was bringing up issues which are going to have to be resolved at higher levels and would slow down the launch process. I believe the tight schedule was in the back of their minds.

We allude to that in our report, but once again can't prove it.

So you have this deeply-held basic understanding -- wrong -- and it's coloring the decisions. I'm sorry for the long explanation.

GUTKNECHT:

Thank you, that was great and it was a comprehensive response, and it was illuminating.

O'KEEFE:

Mr. Chairman, would you mind if I comment very briefly?

BOEHLERT:

Mr. O'Keefe?

O'KEEFE:

Thank you, sir.

I'm guided by what the report says, that program managers may have begun to be influenced by these scheduled pressures. A lot of qualifiers in that. That tells me we've got to strike that balance between schedule and safety objectives and be sure we're diligent about it all the time. And we've got to build in institutionally the forces that create those checks and balances.

And one of the ways to do it -- I think that you've touched on very eloquently at the very beginning of your commentary -- was to reach back into that ethos that everybody relates to in this agency.

Gene Krantz manifested. I've been reading more of the historical, you know, biographies of so many of these folks in the last few months than I ever imagined or anticipated I would.

I just did finish Krantz's "Failure Is Not An Option." And what I find impressive is the guy must have spent a ferocious amount of time every single day just writing up procedures, because he describes as how every incident he went back and rewrote the rules and the procedures. And that's true: We've got to continue to do that and we've got to be more diligent about it.

But then the really important part that I think comes out of this report is then follow them. Really mean them. Don't just write them down just as an advisory thought. There's so many different procedures that we have in place that this report very clearly says if you look at this just, kind of, clinically, should be just great to fireproof any of the process. And then you find that we conveniently follow some, not others, interpret it differently. It, kind of, takes on this informal process of how it goes on.

And the thing that comes out of Krantz's book that I found to be very impressive is, write the procedures, then follow them like you mean them, or amend them, abolish them or rewrite what's there, but mean what you've got in place until demonstrated otherwise.

Had that been the case in this instance, the natural instinct on the part of engineers, flight directors, flight controllers, all these folks, would have been more akin to the ethos he came from, which is, "I don't know the answer to this question. People are assuming they know the answer. Let's go prove it as factual or not."

And that's what we want to reinstill as a mindset. And that begins with this set of challenges, I think, as a culture matter of saying write the procedures and then really follow them like you mean them, or change them.

BOEHLERT:

Thank you.

Admiral Gehman, did you...

GEHMAN:

OK, fine, can I respond?

BOEHLERT:

All right, the chair is tempted to comment, because you raise a number of questions about scheduling, but I'm going to finish the first round before we go to the second round. And I'm not going to take advantage of this position in deference to my colleagues.

Mr. Bell?

BELL:

Thank you, Mr. Chairman.

And Mr. O'Keefe, Admiral Gehman, thank you for being here again. Thank you for your testimony.

Mr. O'Keefe, I would agree with you that I think we face a very unique and wonderful window of opportunity. I do believe the focus is on the space program like we haven't seen in recent memory, and it's our duty now to take advantage of it. And nobody wants to see manned space flight continue any more than me, and I think many of my colleagues on this committee share that belief.

But I think also in the wake of the tragedy that we witnessed last February and in wake of the CAIB report that we've all read that we have to do so -- or go forward with a new sense of purpose and not just sign on to projects and get behind projects because, "Well, NASA says that's the next step, so it must be a good idea." We really have to look at what we're trying to accomplish.

And of course in saying that, I'm talking about the orbital space plane, because from what I've read and heard, you have taken, Admiral Gehman's recommendation that the shuttle should be replaced as the, quote, "clarion call" for accelerating development of the OSP. Is that a fair statement? Am I reading the reports correctly?

O'KEEFE:

It certainly is an option and it is one that clearly is observed in the course of the Columbia Accident Investigation Board report as a requirement in order to provide crew transfer vehicle reliability, if you will, between and to International Space Station. And that accelerating it is, is it going to be a challenging statement?

BELL:

And that's what I would like to talk to you about just a little bit about today. And let me provide a scenario for you and see if you could respond to it and if it's confusing, I'll be glad to repeat it.

But if we maintain the International Space Station until the year 2020 and move toward a full station compliment of six to seven crew members and there is no OSP, under those circumstances, what would you estimate or how many shuttle flights do you estimate would be needed to service the International Space Station until 2020?

O'KEEFE:

I don't know. Off the top of my head, I don't know. Let me get it for you for the record. I just don't recall off the top of my head.

BELL:

OK, well, let me just share what staff has learned and informed us of is it's somewhere between 60 to 80 flights would be needed, shuttle flights under that scenario. Does that strike you as unreasonable?

O'KEEFE:

I have no basis to think that it is or it isn't. I don't know.

BELL:

And if you look at it -- a different scenario, a little different angle, let's say you have an orbital space plane in 2010. How many shuttle flights would be needed to service the station until 2020 under that scenario? Do you have any idea?

O'KEEFE:

Again, I would be guessing and it would certainly -- among the things it would be, it'd certainly be wrong.

BELL:

Well, it surprised me too, Mr. O'Keefe, because staff informs of what they've been told by folks who do know that you would still need 60 to 80 shuttle flights, even with the OSP having been developed.

So if we're looking toward a replacement vehicle and if those numbers are accurate, how does the OSP actually replace the shuttle? What is that sense of purpose?

O'KEEFE:

It supplements the capacity of a cargo-carrying asset- like shuttle, what it is, because what we have designed the requirements to do is two -- at least two primary things. First one is to perform crew transfer vehicle function from the Earth's surface to the International Space Station on a regular, routine basis that is a lot less constricted by the roll-out time necessary for a shuttle. That takes 30 to 45 days. And we've got to do something that's a lot more on-demand, if you will, than that.

The second thing it has to have is an expansion of the launch window. There is currently no real, robust, onboard propulsion capacity on the shuttle to permit a launch on almost any window. You've got to hit that 10-minute parameter during the course of a day or else you might as well forget it for the day because that -- unless you hit that exact orbital maneuver, you're never going to rendezvous with the International Space Station. So it's got to have some on- orbit maneuvering capacity to do so.

BELL:

But even with that, wouldn't you still -- the point is, wouldn't you still need the shuttle until 2020 for the transport of certain supplies and to service a six to seven-member crew?

O'KEEFE:

For cargo capacity, yes, indeed. It's the workhorse asset that will provide that capability and could, either autonomously or with

individuals onboard -- astronauts aboard. So there's a lot of ways to look at it. And there may be other approaches we could use in looking at cargo-carrying assets.

But at least it isolates the question to that. And once you complete International Space Station, the next objective then is how do you get the down mass necessary for the science yield that comes off of it.

O'KEEFE:

And that doesn't require nearly as much mass as what the shuttle can provide.

So, in sum, the objective behind the orbital space plane is to provide the crew rescue capacity, crew transfer vehicle capacity, on a near on-demand, near, you know, no (inaudible) launch capacity, as well as the ability to provide that capability using modern technology that may inform what the next evolving generation of capability will be thereafter.

BELL:

And are you -- are we married to the idea of developing the OSP or are you willing to look at other options as we move forward?

O'KEEFE:

As we've headed the down the road here, in the course of the last year, I think at the instruction of lots of external commentary, to get more precise about what it is we want to build.

While we don't -- by no means do I have a closed mind on this. We are marching down the road towards trying to develop a crew transfer capability as well as the crew rescue requirements that will go along with that, and that is the primary requirement. And if we grow it beyond that to include a cargo asset, we get back in the same kind of design predicament that they were in 25 years ago

when they settled on shuttle and compromised on every one of those requirements by saying, "We'll do all of them, kind of, mediocre, but none of them in an exemplary manner."

And that's what we don't want to get into. We'd rather have a more limited asset that performs in an exemplary manner one or two of those requirements and keep moving our way through this, in order to assure that we not try to pile everything into one asset.

BOEHLERT:

The gentleman's time has up.

BELL:

Thanks very much.

BOEHLERT:

Admiral Gehman, did you have a point you wished to make?

GEHMAN:

Well, I just wanted to point out what the report said, sir. That is that we suggest that the process that ought to be followed by the government of the United States is first of all determine what you want to do, don't design the vehicle, agree on what you want to do.

And what we suggest that that concept is that you should separate the crew from the cargo. And if you do separate the crew from the cargo, Mr. Bell, the requirements -- the numbers come out for the same number of shuttle flights because of the up-mass. But if you put the cargo in a different category, then you would not need the shuttle. But as long as you have the up-mass requirement and you don't have any other way to get the cargo up there, you've got to keep flying the shuttle.

So we suggest deciding what you want to do -- don't design the vehicle, decide what you want the vehicle to do. And what we suggest the answer to that riddle is, separate the crew from the cargo, design a vehicle optimized for crew, and some other way to get the cargo up there.

BOEHLERT:

Thank you very much, Admiral.

The gentleman's time has expired.

Mr. O'Keefe, I need some clarification here, because I think you've added a new dimension to this issue. In response to Mr. Bell's question, you can send the shuttle up autonomously, I think that was your word, or with people? You mean you can send the shuttle up without people?

O'KEEFE:

Under its present configuration, you can't. But there is now a leap, and it's now a technology and possibility, to design the appropriate technology into the shuttle -- it's not going to be a major leap to make it an autonomous capacity to launch it unmanned. Yes, it is conceivable. It's one of the options we're looking at as part of the service life extension program effort that was introduced last November.

Is it the optimum one? Don't know yet. But it certainly is possible; can be done. It's operationally not, you know, prohibited by any...

BOEHLERT:

Well, let me suggest, the Gehman commission board got it exactly right. You've got to decide what you want to do; then you design the vehicle.

O'KEEFE:

Oh, yes, sir. No, no; we're in the same pew. I mean, there's no doubt about it.

I think exactly the discussion with Mr. Bell was what we decided is we want to have a crew transfer vehicle; we want to have a capacity to separate people from cargo, just exactly what the board said. And we were down that road as part of our integrated space transportation plan before. One of the options to continue to service the cargo requirement is to continue to use shuttle, either autonomously or with humans, and there's any number of different ways that you can accomplish that task for cargo as a separate derivative question.

But the first milestone was, as Admiral Gehman just articulated and the report says, separate the crew from the cargo; make a determination what do you want to do. We've done that. That's what OSP is designed to do. And it's intended to be a crew transfer vehicle and a crew rescue capacity for people. Cargo assets is a separate question. And we'll have to work through that as we go along.

We've designed the level one requirements, frankly on a single sheet of paper, to comply with a very limited number of requirements, so that it's technologically doable.

BOEHLERT:

Mr. Weldon?

WELDON:

Thank you, Mr. Chairman.

Mr. Chairman, I would like to start by acknowledging the passing of one of America's premier scientists yesterday, Dr. Edward Teller, who was one of the top leaders in this country, 95 years old, and the early developer, as requested by our government, of our nuclear

program and weapons program. He was an outstanding scientist. He ended his career at Lawrence Livermore Laboratory.

His counterpart on the Russian, or Soviet, side, was Igor Kurchatov. And the two of them in the end of their lives, before they passed, both said the same thing -- and I had the privilege of talking to Dr. Teller earlier this year -- that they only had one regret: that in the end that all of their work in physics was not originally designed to kill people, but rather for the peaceful use of nuclear energy, for science. And in fact we are considering legislation right now, as a part of our defense bill, to create the Teller-Kurchatov Alliance for Peace, which would do exactly that.

So I think it's appropriate that on this committee we acknowledge one of America's great leaders who did so much for our freedom, the passing of Dr. Edward Teller.

Mr. Chairman, I thank you for this hearing. I want to start by thanking both of our distinguished colleagues for their work.

Admiral Gehman, as you have always done throughout your career -- and I've seen you many times on the DOD side -- you have performed in an unbelievably outstanding fashion, and we appreciate that.

Many of the questions have been asked.

Administrator O'Keefe, I want to tell you I admire the work that you've been doing and I think you are an outstanding leader under some very difficult, if not impossible, conditions.

I want to acknowledge first of all not just the purpose of this year, but your personal effort to restore the rotor craft research effort within NASA. That's an issue that I've been raising all throughout this year, both in this committee and the defense committee.

You personally have taken it on within NASA, and I want to acknowledge the success that you've achieved, although it's early,

and let you know that we appreciate that work among all of your other tasks and responsibilities and assignments.

I only had two questions that I would either ask you for the record or to respond to. One you alluded to earlier while I was here -- and both of these involve actions on the part of the other body, the Senate. One relates to the Aerospace Safety Advisory Panel and the recommendations of the Senate, as opposed to some of the calls by our colleagues for some new independent entity and what your feeling would be toward the Senate's proposal that we reconfigure that original advisory panel and perhaps reconstitute it as a way to have the, kind of, short- and long-term monitoring that is so necessary as defined by the report done by the admiral.

And the second is, what is going to be the impact of the $200 million proposed cut by the Senate appropriators on the human space flight program so that we in the House can respond to our Senate counterparts?

On both of those issues I'd ask you to respond either right now or for the record to this committee.

Thank you.

O'KEEFE:

Well, thank you, Congressman, for your very thoughtful observations. And, again, I appreciate your commentary on the rotor craft effort. We have indeed attempted to work that very hard and I appreciate your recognition of it.

On the two issues you've raised, the Aerospace Safety Advisory Panel, again I was intrigued to read the committee report on that matter, that we ought to go back and look at the original charter and objective that was enacted in the statute post the Apollo fire in 1968 by then -- the sponsor of the legislation was then-Congressman Don Rumsfeld from Illinois.

And the proposition was to create this particular panel for the purpose of really having a constant, vigilant oversight. And therefore, shouldn't we go back to its origins and reconstitute it for that purpose?

And that is a very compelling argument, one that I'm really pretty struck by. Because the Congress enacted that for a reason; we ought to make it perform the way it's supposed to. And clearly the performance has been not as diligent as we could have received.

And I think the observation by the board is, even if it were, we wouldn't have the disposition to follow it. So we've got to cover both ends of this particular equation.

The second part -- and I think it's far preferable to creating yet another oversight function. When the reviewers outnumber the doers, we're in big trouble. And we're, kind of, at the point where it's a foot race right now. And so we're trying to maintain absolutely all the appropriate oversight necessary. But let's invigorate the ones that are there to assure we get the right performance.

On the $200 million cut to the space flight, I just did see that the other day. And I can assure that now is a time that it's going to be incredibly difficult to accommodate something like that.

This -- the return-to-flight activities is going to cost something. It's going to be greater than zero. I don't know exactly what yet, until after we make the selection of the options on all 29 recommendations and then make a determination on how much that's going to cost. So it's surely going to be greater than what we have already budgeted.

I don't think it's going to be a showstopper; there's nothing I've seen that looks like -- just eyeballing it -- it's going to be ghastly expensive along the way. But it surely it going to be more difficult if we're starting out in a hole that's $200 million deeper.

And so as a consequence, this is an opportunity I think to follow through on the report's recommendation too that Congress be a partner in this particular equation in helping to, kind of, set the baseline for this. And the president's budget is a baseline we think is properly priced for the International Space Station and for shuttle to continue operations. And we appreciate your support for that.

And I thank you, Mr. Weldon, for your observations.

BOEHLERT:

Thank you very much.

Mr. Moore?

MOORE:

Thank you, Mr. Chairman.

Mr. O'Keefe, you have spoken of the changes in leadership since the Columbia disaster, and I'm very pleased. We haven't really spent a lot of time naming names because I think, as Admiral Gehman points out, the career NASA employees were under a great deal of pressure. I think Admiral Gehman mentioned or spoke of pressures -- internal and external pressures, which I'm sure translated for those employees as irreconcilable pressures from above and from below.

But I am very concerned about the kind of forces on NASA that were being exerted from the top levels. By all accounts or evidently, at least before this Columbia disaster, you were very pleased with the performance of the political appointees in the administration. The year before the Columbia disaster, 11 of the 11 political appointees in NASA got performance bonuses. NASA was the only agency in the federal government in which every political appointee got a performance bonus. In fact, there's been a great deal of criticism for using those bonuses for political appointees at all,

because they're intended to reward and retain career federal government employees.

And this is pretty remarkable for that level of satisfaction with the performance of those top people in an agency that now appears to have been mal-managed in many ways.

First of all, are those 11 still there? When you talked about the changes in management, are they there? Or are some of them gone?

And, second, what were the criteria that you used to judge their performance that all 11 got performance bonuses?

O'KEEFE:

Well, thank you for the question.

Yes, there are some folks who have departed and have withdrawn. Again, as you properly cite, that was more than a year ago, based on the prior year's activities of the individual appointees who are either Schedule C or specific folks who had been appointed by the president (inaudible). I am not one of those. I'm not eligible for any of those, and so therefore this doesn't pertain to those who are appointed by the president, confirmed by the Senate. And so that we are not in that equation.

Of the roughly dozen folks you're talking about, some have left. The criteria that the chief of staff to the president outlined in terms of how that needs to be complied with were issues that went through very specific acts, things that folks did in order to earn those performance awards. And so in going through that 10 or 11 folks, I can walk you through each of them in terms of what their individual performance was that earned them that recognition, and would be happy to do that, either here or at any other time of your convenience.

MOORE:

Five minutes is probably not enough, but I would certainly welcome that.

The purpose of having political appointees is so an administration can exert its control on the various agencies of the federal government. I understand that; I support that. You've got to do that to get control of this huge federal bureaucracy.

But certainly some of the pressures, some of the forces on NASA that the report spoke of do appear to be politically driven pressures, budget pressures. Representative Lofgren asked about those, about the failure to do the budget for the upgrades that were pointed out from below, that bubbled up, that were needed. Also the concern about outsourcing, and that was a criticism made a couple years before, three years before the Columbia disaster, by the space shuttle independent assessment team and then also was pointed out by the CAIB report. The CAIB said that, "Years of workforce reductions and outsources have culled from NASA's workforce the layers of experience and hands-on system knowledge that once provided the capacity for safe oversight."

Were those considerations, cutting budgets, outsourcing as much as possible, were those coming from below? Were those part of what you wanted your political people to be doing in NASA? And are you still as committed to those considerations, those forces, as you were?

O'KEEFE:

First of all, as a statistical matter, we're talking about 10 or 11 folks of an agency of about 18,000. Those are the ones that you control. No, those are the ones who were appointed separately than this career civil service force appointment system. Several of them were appointed by the previous administration and are still with us, and are an exemplary job. So, they are Schedule C appointees, per say, but they are not necessarily there because of their political focus of how to exert the policy matter. I think that's a responsibility for

leadership, and it's independent of the question of your partisan view of these questions.

The president's laid out a management agenda with five primary points to it. That is the understanding, the mantra, within every agency and department across the federal government. Those are the five that the senior management, whether they are career appointees, whether they're appointees of the president of the United States, confirmed by the senate, or whether they're Schedule C appointees, all of us have an obligation to pursue those five management goals.

So those, I think, are independent of the question of your partisan leaning, or whether or not there's an influence of that political agenda. There are five basic, fundamental management things that I think we can all agree to, are the kinds of things we should be cognizant of, and are, really, Management 101 kind of objectives.

BOEHLERT:

Gentleman's time has expired.

Just let me observe that the CAIB report, someplace in there, it said something to the effect that the budget didn't meet NASA's ambition. Now, here is someone who has been very supportive of the space program and the shuttle program. But, when that situation occurs, it seems to me, that NASA has to tailor its ambitions to meet the realities of the budget. That does not mean in any way, shape or manner, that safety is compromised or sacrificed. It just means it's a wake-up call; you've got to deal with the everyday realities.

O'KEEFE:

You're right on the mark. But, at the same time, there's no question, that does not absolve us whatsoever from any obligation, that we really must balance and make more prominent the safety objectives over the mission objectives and so forth.

That said, I have never been associated with any public entity, agency, function, department, anything, in which all of the aspirations were satisfied with the resources that were allocated. That is a no-set proposition, never seen it.

(UNKNOWN)

I know exactly what you're talking about. I've been around this place for two years too, and I've seen some of the same things you have.

(CROSSTALK)

(UNKNOWN)

Mr. Chairman?

BOEHLERT:

Yes?

(UNKNOWN)

I know we have to hurry because you have three more and we're going to be voting pretty soon, but it's my recollection that Vice President Gore, who was in control then of the space program, or had been assigned that by the president, told us to cut 25 percent.

It's always been my fear of cutting, because I didn't know where to cut for fear of safety. But, I knew there were those within NASA who knew how to. And, Mr. Sensenbrenner and I, it's my recollection, went to him and asked Mr. Goldin to cut, the 25 percent. He could do it with a surgeon's knife, or we'd do it with a baseball bat.

He cut it 34 percent. It didn't appear, at that time, to have done any definite damage to the program. It seemed like a pretty intelligent. But, it turned out we've lost a shuttle and we've lost a crew.

I don't know whether you can tie that to that or not, but those are the hard, cold facts of the past. And, we operated with the facts we had at that time and the best information we could get from an entity that we approved of, and that we trusted, and that's NASA, and still do.

BOEHLERT:

Thank you. We learn from the past, but we prepare for the future.

Mr. Nethercutt?

NETHERCUTT:

Thank you, Mr. Chairman.

Welcome, gentlemen. Glad to have you hear.

Let me follow up on that line of questioning relative to preparing for the future. Mr. O'Keefe, as we look at the return to flight program and recommendations, and the CAIB report and all that goes with it, and the need to stress the safety of future missions and shuttle operations and the space station, it's going to cost some money.

The reprogramming that was requested earlier this summer, I understand, was not granted. I think it's $1.7 billion. $87 billion is what we're looking at in the war effort, that the supplemental appropriations will be presented next week. I'm on the sup. appropriations committee, and you have a history of appropriations, I know.

Understand there won't be any requests for NASA. I heard your response to Mr. Weldon, relative to not knowing exactly how much it's going to cost to return to flight and implement the plan that's out there.

Can you be more specific? I know the Senate's down $200 million. It seems to me, you're looking at bigger numbers, and should in

order to ensure safety, but also to meet the expectations of the mission that you have in mind and that the CAIB report has in mind.

O'KEEFE:

Thank you for the question.

The answer to how much it's really going to cost us to implement: on the 29 recommendations that have been made by the board, there are lots of different options that we could choose from to be compliant with the recommendation. Depending on which we choose, that's ultimately then going to arithmetically give you the price tag at the end.

So, rather than start with a number, and then back into the answer of what the options ought to be, we're going the other direction: getting (ph) through what are the best options we can do; airing (ph) with the Stafford-Covey external review group, (inaudible) referred to earlier. And then, make a determination on how much it's going to cost, based on that.

Based on everything I can see, just again, eye-balling it, not anything scientific or really analytical, there's really nothing here that looks like it's going to be a major redesign effort. So, the cost involved in those cases, it's probably going to be a longer-term thing.

Institutionally, when we start this new NASA Engineering and Safety Center, it's going to cost you not a whole lot to get started. Because, you're talking about initial expense for the folks assigned, for a very small fraction of the year. And then, as time goes on, that will escalate, because you've got a full-year cost associated with more people, all that stuff. So, really it's the out-year tails of this, the out-year costs and implications that are the part we really need to be mindful of. The initial expense to do this, I don't think is going to be anything that's going to really amaze anybody.

The bigger cost is going to be to follow through, for example, on discussions this committee has had on several occasions, as well as what this report asserts, which is get on with a crew-transfer vehicle capacity, sooner rather than later. That's not in the president's budget.

What's in the president's budget right now is the assumption of an orbital space plane, crew transfer vehicle, that'll be developed and produced between now and 2010. This is saying, step that up and get on with it. Stop waiting around. That's going to cost, and it isn't going to be cheap.

Whether or not that option is selected or not by the president, is a different question. I wouldn't speculate at this juncture exactly how that'll come out.

NETHERCUTT:

Have you, mindful that the VA HUD bill is headed for conference, have you submitted, or do you intend to submit any budget requests or alternate budget requests, or other information that the conferees can take to the conference and try to help you reach these goals in the next fiscal year?

O'KEEFE:

Sir. Well, there's a number of alternatives in terms of avenues, off ramps, that can be pursued here, either amendment or a supplemental, (inaudible) submission, all of which are on the table right now. I wouldn't speculate on which one the president will choose.

NETHERCUTT:

But, my question goes to the next 30-45 days.

O'KEEFE:

There's nothing that will be a showstopper that says if we don't have bucks within the next 30-45 days, we can't do things.

There is the '04 budget. Again, starting $200 million in the whole would be a real big problem, relative to the president's budget request. But it is, the resources are sufficient to make the kind of thoughtful, step-by-step decisions that we're looking at right now. And, I don't see a real huge bill requiring emergency, urgent requirement to respond to now.

NETHERCUTT:

I understand.

What I want to make sure is clear is you don't expect to have any reprogramming or new budget requests for the fiscal year coming up, that has to be decided in the next 30-45 days relative to the conference between the House and the Senate?

O'KEEFE:

I don't think so. But, again, the way this deliberative process may come out internal to the administration, it's conceivable. But, I just think that's an unlikely prospect. We'll see. Again, I just don't want to foreclose any option at the president's disposal at this point.

(UNKNOWN)

Thank you both.

(CROSSTALK)

(UNKNOWN)

Thank you, Mr. Chairman.

BOEHLERT:

... particularly interested in your response to that question being the appropriator that he is.

O'KEEFE:

Yes, indeed.

BOEHLERT:

Chair recognizes Mr. Nick Smith.

(UNKNOWN)

Thank you, sir.

SMITH:

Thank you and Mr. Hall for having this hearing.

And gentlemen, thank you for your patience through all these questions.

I know the charge of the CAIB report was look at the causes and what can we do to increase safety. But, I want to talk about a larger policy decision, in light of what appears to be a rush back to business as usual, with a possible March launching date. It seems to me that there are reasonable arguments why a manned space flight should be, in effect, put on the shelf. And, it seems to me this committee, Mr. Chairman, this nation, needs to evaluate where we're going, what we want to accomplish, what should be the role of unmanned space flight.

We already know that we have the technology to shuttle some of the accommodations for the space station with robotics, with unmanned flight. We know that with new technology, nanotechnology, micro technology, we have the capacity to more efficiently explore outer space, than with manned space flight.

So, I guess, part of my question is, is by setting the goal of a March launch date, it almost feels like business as usual at NASA. The CAIB report cited unreasonable expectations for the shuttle program, both by Congress and NASA as one of the factors that detracted from the attention of some of the safety concerns.

Last week, Admiral Gehman, you told us, the committee, that NASA has a history of promising more than it can accomplish. I'm very concerned about trying to charge, what appears to be charging ahead, to keep going with the March launch date. If it's successful, then there's going to be some kind of an impression that things are good again and we can continue the program as is.

And, Administrator O'Keefe, you've said that the shuttle will not return to flight until it's fit to fly, but with the target date for six months away, I'm concerned that adequate consideration of that is not going to be made.

So, first, Mr. O'Keefe, you've been quite supportive of unmanned space flight and exploration for the accommodations that it can make. But, don't you believe we need to more deeply discuss what our goals are and what can be accommodated by manned space flight versus unmanned space flight, versus some of this money going into additional ground research.

I chair the research subcommittee, and where are we going to get our best bang for the buck on scientific research.

O'KEEFE:

(inaudible), I appreciate the question. Thank you.

Please let me reassure you, there's just no question, we're going to file this implementation plan and assure that we've achieved these milestones. When we have done so, and those milestones are met, that's when we're fit to fly.

N. SMITH: I know, but I what I hear you saying, you're going on with manned space flight as usual, with the same kind of priorities as before.

O'KEEFE:

In part, in response, as we discussed with Mr. Carcineros (ph) went down a very thoughtful path on this as well, which is that this is the means by which we facilitate the completion of International Space Station to yield the science objectives that can only be accomplished in that micro-gravity condition. Can't duplicate that anywhere else. We can do it for a very short period of time, but we can't sustain the way that exists...

N. SMITH: ... to my knowledge, there hasn't been a good, quantitative evaluation of what can be accomplished with robotics and nanotechnology to accommodate a lot of this research that's being conducted.

Testimony in our research subcommittee indicate that a lot of it can be more effectively, more efficiently done with unmanned space flight, especially for outer space exploration, but also for the scientific experiments that have been conducted.

Having high schools design scientific experiments is not the kind of research, it adds excitement, but it doesn't accommodate the kind of research goals that I think we should be setting.

O'KEEFE:

But that's not dominant priority of what goes aboard. I take your point, and it's very well taken, and it's a thoughtful approach to it.

Nonetheless, in those kinds of scientific objectives, that is, again, referred to, this is one acronym I never heard until I went to NASA, referred to as gas can experiments. I said, what the hell's a gas can? It's a getaway special, in other words, additional room; you've got a spot over in the corner, put it in there.

The primary focus of what goes aboard shuttle, (inaudible) station, utilizing that is the micro-gravity condition for biological and physical research, and some materials research that can't be done anywhere else.

N. SMITH: Well, that's what you're saying, but I think we need a better evaluation to study it (ph), because that's contrary to some other testimony we've heard.

Mr. Chairman, a quick question to Admiral Gehman...

(CROSSTALK)

N. SMITH: ... and that is...

BOEHLERT:

... make it quick...

N. SMITH: In 1960s, with the Apollo fire, we set up the advanced safety advisory panel. Should that be changed, enhanced, if it's going to continue?

GEHMAN:

The answer to your question is, the board believes that a periodic review of NASA's implementation does need to be done. We don't have an opinion on what's the best committee to do that. We recognized that as one of several options.

BOEHLERT:

Thank you very much.

Mr. Lamar Smith?

L. SMITH: Thank you, Mr. Chairman.

Mr. O'Keefe, did I understand you correctly a few minutes ago, when you said you did not feel that the resumption of the shuttle program would lead to greater costs this year, compared to the greater outlying costs?

O'KEEFE:

I don't see the additional in this fiscal year coming, in '04, as being exorbitantly more expensive that what we've seen in the past.

This is new, substantial hardware redesign required here.

L. SMITH: But I assume that there are still unanticipated costs of making the shuttle safer...

O'KEEFE:

Sure. Absolutely. That was a very narrow answer to the question of '04, at Mr. Nethercutt's request of, do we see anything that needs to be acted on in the next 30 to 45 days for this coming fiscal year? And the answer is I don't see it happening...

(CROSSTALK)

L. SMITH: ... given the unanticipated costs and given that you haven't requested a substantial increase in the budget, what programs are then going to be cut to transfer, or to allow for the funding of making the space shuttle program safer?

O'KEEFE:

The first step has got to be to look at the recommendations and to determine what options we choose...

L. SMITH: But, you've admitted that there's going to be additional costs. I'm just wondering what other programs are going to...

(CROSSTALK)

O'KEEFE:

... haven't identified any at this time...

(CROSSTALK)

L. SMITH: Will there be some other programs that will be cut as a result?

O'KEEFE:

It could very well be that there's additional funding requested. I don't want to preclude the president's option on any count.

L. SMITH: My next question is, if you don't make the March deadline, and I hesitate to use that word deadline, which just has a negative connotation these days. But, if you don't make that, what is the back-up plan to complete the space station and to maintain the Hubble Space Telescope.

O'KEEFE:

Again, we'll fly when we're fit to fly, and the milestones are achieved in order to achieve that set of recommendations before we'll return to flight.

There are several different launch windows that would permit that. We need to be flexible enough to accommodate that to assure optimum safety.

L. SMITH: My question really was, though, if you don't make the deadlines, if you don't make the March deadline, or a subsequent deadline and make that an open window, then what plans do you have to maintain the space station or the Hubble, either the space station or the Hubble telescope.

O'KEEFE:

Thank you, I'm sorry sir. I misunderstood.

The current activity we're engaged in to maintain the station as present configuration is the Russian Soyuz capsule, as well as the Russian Progress logistics re-supply capsules.

The International Space Station partnership of 16 countries has done an impressive job of maintaining that...

L. SMITH: ... they will continue to pick up the slack on that?

O'KEEFE:

That is the anticipation. As recently as a month ago, that seems to be disposition on the part of all the partners.

L. SMITH: What about the Hubble?

O'KEEFE:

The next servicing mission was planned to be in late fiscal year '04, early year '05, and, we'll have to assess exactly when is the earliest opportunity we'll be able to do that next servicing mission of Hubble.

L. SMITH: Even if the shuttle doesn't stay within that March goal, you still think you'll have sufficient time to service the Hubble, even if you don't make the...

O'KEEFE:

We'll have to see. I don't want to kid you on this. I don't want to deceive you. I don't know what the consequences will be with all the different program impacts, as we move down the road for the unknowns of what it's going to take to implement what's necessary to do this safely. I don't know.

L. SMITH: Thank you, Mr. O'Keefe.

Thank you, Mr. Chairman.

O'KEEFE:

Thank you, Mr. Congressman, I appreciate your patience.

BOEHLERT:

Thank you very much.

That completes round one. We're advised that momentarily we'll have a series of votes on the floor, and that will draw the hearing to a logical conclusion, because it's unfair to ask you to wait while we go over the floor and some of the games we play, there are procedural motions and things like that.

But, let's go to round two right away.

Mr. O'Keefe, I want to get back to a question I asked earlier about scheduling, and the pace of scheduling. The Young commission determined that not more than four flights could occur in a year. Do you agree with that?

O'KEEFE:

It started as a working assumption of what couldn't occur, but that was their working assumption of what would occur. They argued that the sequence of the deployment ought to be based on the systems integration schedule.

BOEHLERT:

Are you still assuming that four flights a year will clear?

O'KEEFE:

Four to five.

BOEHLERT:

The scheduling four to five flights a year, but next year, we're talking about scheduling four flights between mid-March and mid-December. Is that consistent with the basic recommendation of the Young commission? And how can NASA expect to function with fewer than two months between launches?

BOEHLERT:

It is consistent with the Young commission, the Young panel's view, which is to build a space station at the optimum systems integration schedule that you can achieve. In other words, send the modules and the components when they're necessary to fit into the array that they ought to be.

Whether or not this is an achievable schedule or not, we'll see. We'll see what's dictated by the implementation of each of those milestones, and we'll adjust it accordingly in order to...

BOEHLERT:

But that was pre-Columbia and pre-Gehman and there are a lot of changes, 15 hard recommendations that we've embraced totally, you've embraced totally that are addressed. That's prior to return to flight. There are a lot of turmoil if you will, or activity is a better choice of word, and a lot of change going on. If we've got the schedule pressure that everyone's concerned, and you share that concern...

O'KEEFE:

Absolutely.

BOEHLERT:

Admiral Gehman and everybody on the commission acknowledges you have to have targets, you have to have goals, and all that sort of thing, but undue pressure is something else altogether.

With all this change occurring, to address those 15 specific points and the reorganization and the culture being addressed, how can you even hope to have a schedule that has four flights from March to December of next year?

O'KEEFE:

We may not achieve that. Again, what we're trying to reconcile is let's get the optimum systems integration schedule that the Young Panel called for. Because, we've got all the materials stacked up at Kennedy Space Center, it's ready to go. At the same time, not press the schedule to achieve that, simply because we have to.

We're going to make sure the safety objectives, all the things, the findings in the report are done, and we will do this at a pace in which that balance is attained. And, if we have to adjust that schedule, so be it.

And the message I got from this discussion, as well as from the report, and several discussions with Admiral Gehman is, we have to make sure every person in this agency, down to the guy turning the wrench, knows that that schedule is flexible, in order to understand what the safety imperatives are.

At the same time, we've got to also look at, what do we have to do to build the International Space Station. That's an imperative that everybody has leveled, and so, as a consequence, we're moving in that direction, but not at the expense of any scheduled objective. When we're fit to fly, that's when we'll fly.

BOEHLERT:

I think it might be more realistic to make an adjustment earlier rather than later, but...

O'KEEFE:

Well, Mr. Chairman, if you would, you're raising a very important point as to whether you do it in front or in back.

One way you tease out or bring out the issues of what are impediments to attaining some set of mission objectives, is to lay out what is the optimum systems integration schedule and have folks contest as to why you can't achieve it.

The point that I think that the board made is, listen to them and incorporate that in your scheduling activity. I got that message. And that's exactly what we've got to do. But that doesn't mean you go abandon the approach that says this is an optimum systems integration schedule that the Young panel spent all its time working on, and just throw it out and say, well, we've got a launch going, anything want to go in the back...

(CROSSTALK)

BOEHLERT:

We can have this discussion all day long, but the fact of the matter is, you're not going to snap your fingers and just develop the type the culture that Gehman, and Congress and everybody wants, and you, yourself, have acknowledged you want. It seems to me it would ease the pressure on scheduling, if we're a little bit more realistic in looking at next year and not scheduling four flights between March and December. But...

(CROSSTALK)

O'KEEFE:

... I got it...

(CROSSTALK)

BOEHLERT:

... which came first, the chicken or the egg type of thing...

O'KEEFE:

I got the message...

(CROSSTALK)

BOEHLERT:

In my few remaining seconds, let me ask you about the Hubble telescope figuring into NASA's return-to-flight plans. Will the Hubble take a back seat to the station, even though it is far more important to science?

O'KEEFE:

I certainly hope not, and that's not our intention. There's going to be some challenges to the next Hubble servicing mission, given the fact that there is no means for that mission to then dock with international if there's a problem. And that's one of the issues called out in the report.

So, we're going to have to work through that. And our intention is not to sacrifice the continuing viable operation of Hubble for more convenient missions. That's not the objective at all.

BOEHLERT:

When do you anticipate or project the next Hubble launch, Hubble-dedicated launch?

O'KEEFE:

I've forgotten the date. It was scheduled for, before the accident, early '05. I've just forgotten now. I need to get back to you.

BOEHLERT:

But, it's not going to be '04?

O'KEEFE:

I don't believe so. I don't believe so.

BOEHLERT:

Thank you very much.

Mr. Gordon?

O'KEEFE:

Thank you, Mr. Chairman.

GORDON:

Thank you, Mr. Chairman, just a couple quick questions.

Mr. O'Keefe, you have stated on a number of occasions you want to embrace all of the recommendations of the Gehman board, and one of those recommendations, as Admiral Gehman has pointed out today was, that we have national goals, more specifically, what we want to do in space and what we're prepared to pay for.

Is that a goal that you hope to have an answer to, when they come back in a year and do their snapshot?

O'KEEFE:

Yes sir.

GORDON:

Good. Thank you.

And, Admiral Gehman, this sounds a little bit deja vu -- the return-to-flight task force is, I think, a good faith effort by Mr. O'Keefe to try to

get, as he says, some new eyes, to look on your recommendations in return to flight. But when you look at this, you see this is a commission that was recruited by the administrator, appointed by the administrator, reports to the administrator, many have economic ties to NASA. One of the vice chairmen, who I'm sure is a very honorable person, I don't know, and very able, but is a vice chairman of the largest contractor with NASA.

What advice would you have for this group, in terms of, your experience of trying to get it right as well as give the public the confidence that it's going to be done properly?

GEHMAN:

Mr. Gordon, I have, both myself and the board, have had several interactions with the Stafford-Covey return-to-flight group, and we have told them in the strongest possible terms what are concerns are, where the pitfalls are, where the shortcuts might be taken, and we have found them to be very aggressive. They actually came back at us -- why didn't you do this, why didn't you do that -- they asked about other things. They're very independent, very aggressive. I have confidence they'll do a great job and my advice is just to watch over it. I'm confident in them.

GORDON:

Thank you.

BOEHLERT:

Mr. Rohrabacher?

ROHRABACHER:

Thank you very much, Mr. Chairman. I'd like to thank you for your leadership again. I'd like to thank your staff for the hard work that they've been putting in for putting this meeting together today. I

think this has been a very invaluable effort and we've all profited from it.

There's some specific, something specific I'd like to ask Mr. O'Keefe, in terms of some problematic areas here, but let me just say that, overall, if anything has come out of this hearing, it seems to be that there needs to be a vision statement by the president of the United States. I don't want to speak for the whole committee here, but I would suggest that the message of this hearing is loud and clear to us, that the president of the United States needs to ask, needs to give a vision statement, needs to give some personal direction.

I would recommend that on December 17th, that he be down in Kitty Hawk, N.C., or some other venue, at the 100th anniversary of human space flight, to give us a statement of the United States of America and perhaps all of humankind on what are goals should be for human space flight in the future, and I think that would be apropos. I think that this, after hearing the testimony today, everybody is calling out for some leadership from the White House on this. And, I think that the 100th anniversary of manned flight would be a very good forum for that.

ROHRABACHER:

With that said, I'd like to ask you some couple specifics, especially, it seems disturbing to me, again, we're talking about mindset as being a major cause for this accident. If anything came out of this is that mindset, foam can't be a threat was a mindset in NASA that contributed to the factor. Then, the schedule should not be hurt, because of something that is not a threat was also a mindset. And so, we see how those two mindsets work together to cause this tragedy.

There seems to be another mindset at NASA, that is we need to get back to flight as soon as possible. And I keep hearing it, even

though safety's going to be taken into consideration, but there are other options. There are other options to bringing back the shuttle.

Mr. O'Keefe, I understand that we supply flights bringing food and water and propellant and other things to space station, not people, can be done by alternatives, by our partners, or by private sector alternatives. Yet, NASA seems to be saying that they're going to take shuttle up to help re-supply the space station.

What's going on here? Is this another mindset?

O'KEEFE:

Sir, I hope not. The approach that we've been using since the accident in supporting the space station is to use the Russian Progress vehicles, which incorporates and has the capacity...

ROHRABACHER:

Mr. O'Keefe, I'm talking about your plan in the near future.

O'KEEFE:

I apologize; just let me finish that last sentence.

ROHRABACHER:

Yes sir.

O'KEEFE:

The Progress flights can carry a small fraction of what shuttle can. So, the issue is not re-supply, it's how do you use that capability for the size objectives. We're really maintaining right now.

I apologize; you were going to go on...

ROHRABACHER:

I would suggest that, the figures I've seen is that the space station can be re-supplied by the Russians and by private sector alternatives that are out there.

And yet, it seems to me, you're telling us that the shuttle will be assigned to carry supplies to the space station.

O'KEEFE:

Let me go back and take a look at that, based on what you're findings are, on what is it we could do without shuttle to maintain logistics, re-supply, science, all the things, and, by the way, get the modules up there too.

If we've got other alternatives to shuttle to do that...

ROHRABACHER:

I'm not suggesting that. I'm suggesting that there are certain missions for the shuttle that can only be done by shuttle, and need to be done by shuttle in terms of finishing the space station. But those missions that do not need to be done by shuttle should not be done by them.

It seems to me that NASA, by pressuring out, by actually holding off alternative access to station, in terms of the private sector and by our space station partners in Russia are trying to maneuver a greater dependency on shuttle than we need to have.

Now, Admiral Gehman, I asked you this at the first hearing. Is it not your finding that the space station should be re-supplied, if possible, not by the shuttle but by other sources?

GEHMAN:

In the mid-term, yes sir. As soon as possible, it should be the policy of the United States to do cargo by some other means.

ROHRABACHER:

OK, so let me put that on the record, Mr. O'Keefe, and I would hope that as soon as possible, and that means if there is another alternative, it should be used, rather than shuttle. It's too risky otherwise. The shuttle can be done for those things that only the shuttle can do.

Thank you very much, Mr. Chairman.

BOEHLERT:

Thank you. Gentleman's time has expired.

Mr. Hall?

HALL:

Mr. Chairman, I'll be brief again. I used most of my time to ask my question and gave you the chance to answer it with a yes or a no. It took a little longer to say yes than it did no. You gave me a yes and I appreciate it.

I want to ask a question for Mr. Lampson to where we can get this on the record. He's not here. I think you over answered his question, but you didn't actually directly answer it, because he wanted a name or position or something as to whom he could talk to.

A little girl went to her momma when she was 12 years old and said, "Momma, I've got to ask you a question, where did I come from?" And the mother said, "Oh my God, this is the time I've got to give her an answer," and took an hour to answer. And she said, "Well, I just wondered. Johnny said he came from Chicago."

So, I want a straight answer and if it's "I came from Chicago," then give it to me. The White House said -- and if you give me a General Haig answer, like, "I'm in charge here." You may be the one, but he

wants to know. He's dying to know; he's probably upstairs crying now because you wouldn't tell him. Dial-a-prayer, or something, I don't know what he's doing.

The White House set up interagency team, interagency review, and you must've talked to somebody, so let me make it simple. Did you talk to the president? I know his name. I can give him that name.

O'KEEFE:

Yes sir, I did.

HALL:

And then he's in charge, really. Then, the vice president?

O'KEEFE:

Yes sir.

HALL:

Has he been designated (ph)?

O'KEEFE:

He's definitely involved.

HALL:

How about Andrew Card?

O'KEEFE:

Peripherally, yes.

HALL:

Karl Rove?

O'KEEFE:

No.

HALL:

I'll scratch him off of here.

Don Evans?

O'KEEFE:

No, he's a Congress department representative though.

HALL:

You know, like, the former president put the vice president in charge, overseeing. Do we have anybody like that, that's overseeing interagency review?

O'KEEFE:

It's been set up through the usual policy operations...

(CROSSTALK)

HALL:

... going to...

O'KEEFE:

There's not a permanent chair. There is someone, yes. Maybe there will be one, maybe not. But again, the objective is: coordinate all those opinions, advice, and offer them to the president for his judgment.

HALL:

OK. All I can tell him is Carl Rove is not one of them.

O'KEEFE:

You can say me. I'm a member of that; I'm a party to it. I'm involved in all these discussions. Certainly the president's science adviser is, Dr. Jack Marburger, as well as other members of the administration as necessary, to offer the views to the president on where we ought to go with this particular process. And if he wants to communicate with the vice president, or anybody does, those are the kinds of things that I think we're all looking forward to hearing inputs on that point. I'm not trying to be coy or cute with this, it is just not a -- there's no committee, per say. It's the same kind of process that you use on this committee, in consultation with you staff and other members. There's nothing formalized about it.

HALL:

There should be and will be. Somebody'll finally have the final answer, final say; we won't have to call the president with everything we want to know about it.

O'KEEFE:

It will be framed up in a set of options, in which the president will then have an opportunity to choose where he wants to go.

HALL:

And you promise me you'll tell my friend Mr. Lampson when that happens won't you?

O'KEEFE:

Yes sir, absolutely, and you sir.

HALL:

Thank you very much.

O'KEEFE:

And I'm from Chicago.

BOEHLERT:

Mr. Barton?

BARTON:

Thank you, Mr. Chairman.

I didn't say this at the start of my first question round, but I want everybody to know, especially the administrator and Admiral Gehman, I am a supporter of the U.S. Space Program, and I'm specifically a supporter of the manned space program for the United States, so I'm not anti-space, I'm not anti-NASA, and I'm not anti-O'Keefe. But, I am anti-using the shuttle to put Americans at risk.

If you look back there on that wall, on that left corner, that gentleman's name is O.E. Tiger Teague; he was a tank commander for General Patton in WWII. He came back to College Station at the end of the war, introduced Dwight David Eisenhower to about 30,000 veterans at the football stadium, Cal (ph) Field, and announced that he was going run for Congress, and he didn't have an opponent.

He later became chairman of the Veterans' Committee, became chairman of the Science Committee. He and guy named Lyndon Johnson were the two guys that kind of put the muscle behind John Kennedy's vision of putting a man on moon by the end of the 1960's.

After he left Congress, Phil Gramm became the congressman for the sixth district. After Phil Gramm became the senator from Texas, I became the congressman for the sixth district.

So, I have a history in the space program. And I want it to continue. But, I believe if we can go from John Glenn, in the Mercury program, going around the earth, first American to orbit the earth in February of 1962 to Neil Armstrong becoming the first American to step foot on the moon in July of 1969 -- that's seven years, seven years when we had no technology. We just had a vision. We can surely come up with a space plane that puts Americans into space safely, and a way to get the cargo up to the space station, in less than six or seven years.

Now, here's my question. If we direct you, we being the United States Congress and the president, if we were to direct NASA to build a new space plane or crew capsule that was just man-specific, no cargo other than the necessary elements to protect the crew and sustain them as they go to the space station, how long would that take? If money was no object, and we just said, do it, how long would that take?

O'KEEFE:

Based on the inquiries of this committee, over the course of the last several months of saying, what would it take to accelerate the orbital space plane to 2008, it is conceivable. It can be done.

BARTON:

So you think five years?

O'KEEFE:

Yes sir.

BARTON:

In a crash program, high priority. It's going to take you five years?

O'KEEFE:

The pace in which this works is pretty brisk. I'd hardly call it crash. It's not a...

BARTON:

I don't mean that, I shouldn't use crash. High priority.

O'KEEFE:

Exactly, I understand your point. It's a very attentive program. It's going to have a lot of folks attached to it. You bet, within five years, we should be able, if we stick to the Level 1 requirements, that we've levied and, here are the things we want it to do, the working assumption is, we can attain that within five years.

BARTON:

Now, what would it take, and how long would it take, if we also directed you to retrofit the three remaining orbiters for cargo only, as you, I think you and the Admiral said, autonomous operation. How long would that take and what would that cost? If you were directed, not given a "go study the dad-gum thing," we just told you, "do it."

O'KEEFE:

I don't know with precision, but certainly a lot less time than that.

BARTON:

Two years?

O'KEEFE:

I don't recall, but let me get back with you.

BARTON:

Can you have your experts...?

O'KEEFE:

Absolutely. I'll call you this afternoon...

BARTON:

... get the chairman...

O'KEEFE:

I'll call you this afternoon.

BARTON:

Give me an approximate cost number.

O'KEEFE:

Don't know.

BARTON:

If we direct you to do these things, to make it a high priority to build a new crew cab soarer (ph) and to make it a high priority to convert the three orbiters to cargo-only, would NASA be amenable if we put that in a supplemental spending bill, so we did it outside the normal budget process. And, if you're cooperating with us and you're meeting the Gehman report estimates and all that, you tell us what it's going to cost, give us a program that we sign off on, and we put it in a supplemental so it doesn't come out of your existing budget. What's your reaction to that?

O'KEEFE:

I'm happy to provide whatever advice or commentary, costing, whatever the committee needs on an issue like that. The president's budget position...

(CROSSTALK)

(UNKNOWN)

... would you also include whatever analysis you give what we would do with the Hubble, how we would service the Hubble?

(UNKNOWN)

Admiral?

GEHMAN:

Sir, don't forget to include in your estimates that when you build a crew transport capsule, that you are also going to have to get some kind of propulsion system to get it up there. Just sticking this thing on top of a Delta Four is not going to do it.

BARTON:

I'm not the expert on how to do it. But, I strongly believe that when people like us and the president tell you what to do, you're going to be walking, wondering around in the wilderness.

GEHMAN:

I'm with you. But, just remember there are two parts to it.

BARTON:

I understand that. I yield that and my time.

BOEHLERT:

In fairness, the answer of...?

O'KEEFE:

Five years.

BOEHLERT:

... can't be attained if you're talking about getting up there by a different launch system.

BARTON:

My premise is different...

BOEHLERT:

You still have time.

BARTON:

... than anybody on this panel. My premise is, not one more American is going to go, strapped in a shuttle. If I can stop, I'm going to stop it. I'm not going to play that game anymore. I've watched 14 Americans get killed and I've had it with that. I also, since I support the space program, and the manned space component of the space program for the United States, I have an obligation to come up with an alternative that still lets us operate the space station, but gives us a new capability and, hopefully, get a new vision like President Kennedy gave to the American people in the 1960's.

And, Congressman Hall is very polite in his questions as to whom we have to talk to. But, all those people that he mentioned by name are personal friends of mine, and I'm talking to them, and I mean talking to Carl Rove, even though he's not on his list. And I think...

(UNKNOWN)

Probably missed the most important one.

BARTON:

Well, Laura Bush, you didn't put Laura Bush on that list...

BOEHLERT:

Gentleman's time has expired.

BARTON:

I apologize, Mr. Chairman.

BOEHLERT:

Ms. Jackson Lee?

JACKSON LEE:

Thank you very much, Mr. Chairman.

Let me thank Mr. O'Keefe and Admiral Gehman for their patience. We've run about 50 miles since I last saw you between meetings. And, I thought it was very important to come back to raise a number of questions. I think it is important to note that members are on this Science Committee because there's a degree of passion of commitment, and every member's inquiry is an important inquiry. So I appreciate your patience.

And you were trying to be responsive to my inquiries, and I thank you for the thoroughness in which you offered it, which I would not have wanted to interfere with your expressing, to the best of your ability, the answers to my questions. So I respect you for that and I thank you and would not in any way suggest that you should not have the opportunity to continue on your answers as I would likewise for my fellow colleagues on this committee.

JACKSON LEE:

Our work is serious here, and I think it's important that we try to find solutions. That's why we're here. So I have four questions, that tie into the original line of reasoning that I offered in the earlier series of questions.

The first one that I was attempting to seek a response as we were concluding, is to secure and enlist the collaboration of NASA on the issue of anti-retaliation legislation or policies. My simple question to you: will you work with us on putting a new light, a new atmosphere into NASA with actual procedures, and we may engage you in legislation, but we're going to be very thoughtful. Would you help us with that?

O'KEEFE:

Yes, ma'am.

JACKSON LEE:

On the issue of individuals who were held accountable, you gave me who was moved. Do you have the numbers of individuals who were terminated, pursuant to any actions or inaction that might have occurred around Columbia seven? And again, I've said numbers versus names.

O'KEEFE:

Just off the top of my head, there are at least three who have departed the agency.

JACKSON LEE:

In their own way, as some would say, not necessarily through termination?

O'KEEFE:

Correct.

JACKSON LEE:

And that I will want to pursue with both of you in maybe some other discussions about that structure.

The other question is related to the International Space Station, and my discomfort with, and I'm going to tie two questions into that: my discomfort with whether or not the space station is safe; whether or not in all that we have done, have we included, just to be safe, embraced the space station.

And I mention this return-to-flight issue, and I'm not sure whether it covers the space station, but again what struck me, stark review of the several thousand waivers of shuttle space de- requirements to determine whether they were justified. And, I'd like both you and Admiral Gehman to just refer that, even though this is not your report, Admiral Gehman, but I guess it's responding to your report.

My last point is, just to follow up my good friend from Texas, he wants $30 billion more I last heard from him. He knows that I'm very supportive of Congressman Barton's effort to secure more dollars that will hopefully embrace the word safety. I think there's no NASA without safety. There's no tribute or respect to those who lost their lives, without safety.

The orbital space vehicle -- I understand you want to put in on an Atlas or Delta launch. What is the comparison of safety? It's my understanding that that success rate you might tell me, is worse than or no better than the shuttle, or we're not gaining anything by using it in that way. I would like to be informed on that.

If you could answer those questions, I greatly appreciate it. And, I will look forward to working with you on the anti-retaliation effort.

O'KEEFE:

Thank you very much. And you, as well. I'm committed to doing that. We want to be sure there's no one in this agency that feels like they can't speak up and, if they do, that there is consequences for their opinion having been offered. The profound observation of this report, not only did the members say that they had investigated that behavior, but that they witnessed it themselves. That is

unacceptable, on any circumstances. So we are committed to assuring that that does not happen. There's a lot of ways we've got to go about doing it; we want to work with you to find acceptable ways to do that.

On the second issue, really cuts to the inquiry and dialog we had on the independent technical authority on the waivers, which is, I think you can accomplish several things that the board recommended by procedural changes, where we really have to figure out what the appropriate options are.

It first starts with the proposition that the board articulated very forcefully, with no ambiguity, which is to sever, separate, remove, get out of the program management team, the functions related to specifications and configuration control from the program management imperatives of day-in, day-out, cost schedule, operational imperatives: hiring people, bringing folks in, all that.

That first step, I think we need to make sooner rather than later. The time is now, because focus and attention is on it. We need to come to closure on a number of very thoughtful ways to go about achieving that objective organizationally, but we've got to pick one and pick one sooner, rather than later.

Then the step becomes, justify the waiver authorities you may be looking at, because now you have an organizational entity, that has the capacity to push back and say, prove to me or demonstrate to me, why such a requirement needs to be waived, versus telling me it's just a neat goal that we'd like to attain in order to achieve that task.

Lastly, on your questions about the spend (ph) on the launch vehicle, that's the only way that anyone now knows how to get folks off this rock and into space. If there's another idea that comes up on how to achieve that, we're all ears. But it's the only way we know of right now to make it happen. And if that is an unacceptable approach, we ought to move away from all that and give this up.

That's an acceptable answer to some members, but to others it would be viewed as just not feasible. Until we mature some of the other technologies of how to do it, chemical propulsion is where we've been stuck for 40 years. And we're trying to get out of that, and I commend the committee and the Congress for having stood up to the efforts to try to diminish the Project Prometheus efforts, which was the first serious effort to get out from underneath that challenge.

Thank you very much, Mr. Chairman.

BOEHLERT:

Thank you very much, Mr. O'Keefe and Admiral Gehman.

To show you how much influence we have over the House, they waited to we had the last word in this committee before scheduling any votes in this very busy season.

I wish, on behalf of the entire committee, to salute both of you, for your continued cooperation through this whole, very difficult process and for your outstanding contributions to finding out what went wrong, so we can fix it and get on with the program.

Thank you all very much.

Meeting's adjourned.

CQ Transcriptions, Sept. 10, 2003

List of Speakers

REP. SHERWOOD L. BOEHLERT (R-NY), CHAIRMAN

REP. LAMAR S. SMITH (R-TEXAS)

REP. CURT WELDON (R-PA.)

REP. DANA ROHRABACHER (R-CALIF)

REP. JOE BARTON (R-TEXAS)

REP. KEN CALVERT (R-CALIF.)

REP. NICK SMITH (R-MICH.)

REP. ROSCOE G. BARTLETT (R-MD.)

REP. VERNON J. EHLERS (R-MICH.)

REP. GIL GUTKNECHT (R-MINN.)

REP. GEORGE NETHERCUTT (R-WASH.)

REP. FRANK D. LUCAS (R-OKLA.)

REP. JUDY BIGGERT (R-ILL.)

REP. WAYNE GILCHREST (R-MD.)

REP. W. TODD AKIN (R-MO.)

REP. TIMOTHY V. JOHNSON (R-ILL.)

REP. MELISSA A. HART (R-PA.)

REP. JOHN SULLIVAN (R-OKLA.)

REP. J. RANDY FORBES (R-VA.)

REP. PHIL GINGREY (R-GA.)

REP. ROB BISHOP (R-UTAH)

REP. MICHAEL C. BURGESS (R-TEXAS)

REP. JO BONNER (R-ALA.)

REP. TOM FEENEY (R-FLA.)

REP. RALPH M. HALL (D-TEXAS), RANKING MEMBER

REP. BART GORDON (D-TENN.)

REP. JERRY F. COSTELLO (D-MICH.)

REP. EDDIE BERNICE JOHNSON (D-TEXAS)

REP. LYNN C. WOOLSEY (D-CALIF.)

REP. NICK LAMPSON (D-TEXAS)

REP. JOHN B. LARSON (D-CONN.)

REP. MARK UDALL (D-COLO.)

REP. DAVID WU (D-ORE.)

REP. MICHAEL M. HONDA (D-CALIF.)

REP. CHRIS BELL (D-TEXAS)

REP. BRAD MILLER (D-N.C.)

REP. LINCOLN DAVIS (D-TENN.)

REP. SHEILA JACKSON LEE (D-TEXAS)

REP. ZOE LOFGREN (D-CALIF.)

REP. BRAD SHERMAN (D-CALIF.)

REP. BRIAN BAIRD (D-WASH.)

REP. DENNIS MOORE (D-KAN.)

REP. ANTHONY WEINER (D-N.Y.)

REP. JIM MATHESON (D-UTAH)

REP. DENNIS CARDOZA (D-CALIF.)

WITNESSES:

ADMIRAL HAROLD W. GEHMAN JR., CHAIRMAN COLUMBIA ACCIDENT INVESTIGATION BOARD

SEAN O'KEEFE, NASA ADMINISTRATOR